Committee on Environment and Public Works
United States Senate

Hearing on "An Examination of the Views
of Religious Organizations Regarding Global Warming"

June 7, 2007

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Good morning Chairman Boxer, Senator Inhofe, and members of the committee. I appreciate this committee's concern for the perspectives of religious organizations on the global warming debate, particularly given the persistent appeals to theology and spirituality by both secular and religious advocates of massive governmental action to address the issue of climate change.

The role of religion, and specifically of evangelical Christian theology, in the global warming conversation has been an important part of the public policy debate for several years—ranging from "What Would Jesus Drive?" advertising campaigns to the competing manifestoes of evangelical interest groups to the recent book by E.O. Wilson written in the form of a letter to a Southern Baptist pastor in an appeal to form alliances to "save the earth."[1] Evangelical interest in the global warming issue is framed by some in the press and by more leftward sectors of American political life as a seismic shift in evangelical political engagement—away from concern with so-called "Religious Right" issues such as abortion and marriage and toward a "broader" agenda more compatible with the platform of the Democratic Party.[2]

Yet, religious voices on the issue of global climate change are not as uniform as some might suggest. There is a significant constituency within American evangelical Christianity deeply concerned about the use of biblical texts and theological rhetoric to pursue specific policy proposals on climate change, proposals that could have negative repercussions both at the level of public policy and at the level of evangelical identity. The Southern Baptist Convention stands representative of this concern. The SBC is the nation's largest Protestant denomination, made up of over 16 million members in more than 42,000 churches. With other evangelical denominations and organizations, the SBC has expressed concern about the theological assumptions behind the religious voices calling for massive governmental intervention on the question of climate change.

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[1] E.O. Wilson, *The Creation: An Appeal to Save Life on Earth* (New York: W.W. Norton, 2006).

[2] For example, Michael Luo and Laurie Goodstein, "Emphasis Shifts for New Breed of Evangelicals," *New York Times*, 21 May 2007, A1, A15; Jim Wallis, "The Religious Right's Era Is Over," *TIME*, 16 February 2007, accessed online at http://www.time.com/time/nation/article/0,8599,1590782,00.html.

The refusal of many conservative evangelicals to accept at face value the arguments for drastic government involvement and action regarding global warming should not be seen as a lack of concern for the care of creation. It is not as though conservative Christians are asking, "What hath Jerusalem to do with Kyoto?" Secular environmentalist progressives at times have charged American evangelical Protestants as holding an inherent hostility to environmental protection—rooted often in a caricature of evangelical views of human dominion, Armageddon, and the imminence of the end times.[3] Such caricatures do not stand up to close scrutiny. Indeed, the beginnings of the contemporary ecological movements coincided with evangelical thinkers such as Francis Schaeffer and Carl F.H. Henry calling the church to stewardship of the earth.[4]

The SBC, a consistently conservative voice on theological and cultural concerns since a redirection of the denomination's leadership in 1979 called the Convention back to the doctrinal orthodoxy of its founders, has adopted resolutions calling on Southern Baptists to "recognize publicly our responsibility to God to be better stewards of all of the created order" and to "seek ways personally and corporately to care for the earth" [Appendix A]. Far from seeing the earth as of secondary importance in light of a future Armageddon, messengers to last year's Southern Baptist Convention meeting spoke publicly to the goodness of the created order and to the ultimate restoration of the cosmos in Christ [Appendix B]. Because the creation reveals the glory of God, Southern Baptists resolved, the protection of the creation should be a priority for Christians.

The theological impetus for environmental concern on the part of Southern Baptists and like-minded evangelicals is, however, the very reason these Christians are opposed to the use of religion employed by some environmental activists on the global warming issue.

The first area of concern is that the biblical text not be used as a vehicle for a political agenda—no matter how commendable the agenda might be. This does not mean that evangelicals believe the Scripture is irrelevant to political concerns. Southern Baptists and other evangelicals are not afraid of saying "Thus saith the Lord" to issues clearly revealed in Scripture—calling for the protection of innocent human life, for instance. The Bible does call us to serve as guardian-stewards of the earth and her resources, but the global warming debate is not simply between those who argue for such stewardship and those who argue against it. Rather the debate is, at this point, largely at the questions of prudence. How much of climate change is human caused? And what would be the cost—in terms of loss of economic security, private property, national sovereignty, personal liberty—for such initiatives to be put into place? Christians can and do disagree on such questions. To tie the authority of the Bible to the shifting and revisable scientific and public policy proposals of one's global warming agenda is unhelpful to the debate at best and trivializing of Christian faith at worst.

This hyper-politicization of the gospel is a key reason why conservative Protestants in the twentieth century distanced themselves from the liberal bureaucracies of the National Council of

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[3] For example, Stephenie Hendricks, *Divine Destruction: Wise Use, Dominion Theology, and the Making of American Environmental Policy* (Hoboken, NJ: Melville House, 2005).

[4] For example, Francis A. Schaeffer, *Pollution and the Death of Man* (Wheaton, IL: Tyndale House, 1970).

Churches and the mainline denominations, groups which now face ever declining memberships even as they churn out more and more detailed policy statements. As evangelical theologian Carl F.H. Henry put it in 1964, "Is it not incredible that some churchmen, whose critical views of the Bible rest on the premise that in ancient times the Spirit's inspiration did not correct erroneous scientific concepts, should seriously espouse the theory that in modern times the Spirit provides denominational leaders with the details of a divine science of economics?"[5] This pattern repeats itself in the present discussion of climate change. Evangelical Christians will not be convinced to support a public policy proposal on the basis of citations of the Garden of Eden and the Ark of Noah by churches that long ago relegated the narrative of Genesis to myth and saga.

The ecumenical Left is not the only religious voice calling for specific action on global warming. Groups such as the Evangelical Environmental Network and some high-profile evangelical leaders have also joined the debate. Many of their arguments are sound, and can be affirmed and commended across the evangelical spectrum. The problem with this engagement comes not at the question of human stewardship of the environment, but, again, with the tying of this mandate to specific policy proposals—with ramifications that are not yet fully known.

This is further complicated when national political leaders point to evangelical global warming activism as a means to mobilize the evangelical vote toward liberal candidates. Democratic National Committee chair Howard Dean has called on outreach to evangelicals—not by reconsidering the Party's platform on issues such as abortion rights—but by capitalizing on what are seen to be liberalizing political trends within evangelicalism. "People don't want to go to church anymore…and come out feeling bad because they know someone who's gay," Dean said. "People want to go to church because they want to know what they can do about poverty, about Darfur, about the environment."[6] Actually, most evangelicals would say that people go to church for none of these reasons, but instead to know Christ and to live together as an obedient outpost and herald of the Kingdom of God. The partisan political dynamic further impedes the conversation among evangelicals.

The use of religion by global warming activists is what leads to such statements as the June 2006 SBC resolution [Appendix B] which concludes that "some environmental activists are seeking to advance a political agenda based on disputed claims," an agenda that, according to the Convention resolution, threatens "to become a wedge issue to divide the evangelical community and further distract its members from the priority of the Great Commission."

Secondly, Southern Baptists and other conservative evangelicals are wary of the utopianism present in many of the environmentalist proposals on climate change—both secular and religious. An evangelical Protestant commitment to creation is built on an understanding of the narrative of history as outlined in Scripture. God created all things, and declared them good, for the purpose and goal of presenting the universe as an inheritance to Christ Jesus. Humanity, God's image-bearing vice-regent, declared treason against God's lordship and plunged the natural order into captivity to a curse. In Christ, Christians believe, God is redeeming the

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[5] Carl F.H. Henry, *Aspects of Christian Social Ethics* (Grand Rapids: Eerdmans, 1964), 136-37.

[6] Carla Marinucci, "DNC Chair Dean Says Party Needs to Invite Young Evangelical Christians," *San Francisco Chronicle*, 11 May 2007, B2.

world—by putting away sin and death. And, ultimately, God will redeem his creation by freeing nature from its curse. We understand that we live in the "already" of an "already/not yet" framework of this restoration. We cannot therefore share an economic libertarian's purely utilitarian view of the earth and its resources. Nor can we share a radical environmentalist's apocalyptic scenarios of "earth in the balance." In our care for creation, we must maintain the limits of environmental action, knowing that the ultimate liberation of creation has everything to do with our resurrection and the resumption of human rule through Christ over this universe. This sense of limitation is why the 2006 SBC resolution speaks both of human stewardship over creation and the preeminent responsibility for human reconciliation with God.

One can then understand why some evangelical Christians may be puzzled when a respected conservative evangelical statesman says that the global warming cause should be seen as "a note from God" saying that, though sin has its consequences, "with my help you can restore Eden."[7] Without a doubt this evangelical did not mean to imply that global government action on climate change, fueled along by creation-care theology of religious persons, could reverse the curse of the Fall. Nonetheless, conservative evangelicals, such as Southern Baptists, will not resonate with any program to address climate change that does not clearly see the limitations of such human endeavors, especially since so much of the language of the secular environmentalist movement often veers into techno-idolatrous triumphalism that is closer, in the minds of evangelical Christians, to the Tower of Babel than to the Ark of Noah. Christians, as all people of the contemporary era, have seen the failures all around us—some simply misguided; some profoundly wicked—of utopian visions that call for the power of national or multi-national governments.

Finally, Southern Baptists and like-minded evangelical Christians are concerned that any public policy proposals on global warming do not compromise the uniqueness and dignity of humanity. The 2006 SBC resolution warns against a "neo-pagan" environmentalist replacement of God the Father with Mother Earth [Appendix B]. The resolution further laments that some sectors of the environmentalist movement have "elevated animal and plant life to the place of equal—or greater—value with human life." This concern is hardly imagined. While former Vice President Gore chooses to speak of global warming as a "fever" of the earth, others have used far more disturbing language—including recently one liberal Baptist thinker who commented that human beings themselves are the earth's "cancer" eating away at the organism of the planet.[8]

That human beings bear the image of Jesus, the perfect icon of God's nature, is at the very heart of the Christian understanding of the universe. The earth was indeed created, evangelicals believe, for human beings—or, more correctly, for *a* human being: Jesus Christ. It's not just that the meek shall go to heaven; they shall inherit the earth.

The unique dignity of humanity must be addressed in the global warming debates chiefly on two issues: that of population control and that of the world poverty.

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[7] Richard Cizik, cited in John McNeill, "12 Ideas for the Planet," *Newsweek,* 16 April 2007, 92.

[8] Oliver "Buzz" Thomas, "God Goes Green," *USA Today*, 4 June 2007, A11.

Any public policy proposal on global climate change that seeks to enlist the support of evangelicals must address the role of population control in such an agenda. This is especially true in an era when millions of unborn children every year lose their lives to abortion; when governments such as that of China coercively determine family size. Evangelical global warming activists assure us they remain committed to the sanctity of human life; and I believe them. But those who are still unsure of the precise contribution of human beings to climate change will be especially attentive to whether any proposal—even one we can support otherwise—does not sacrifice the dignity of human life.

Likewise, Southern Baptists and other evangelicals must question the effect of any global warming legislation on the world's poor. In a groundbreaking study, Philip Jenkins reminds us that global Christianity is increasingly less represented by the wealthy elites of America's dwindling Protestant mainline and more represented by impoverished but vibrant congregations in the Global South.[9] What will global warming measures do to men, women, and children, in these countries? The global poor are not simply a "cause" for conservative evangelicals. Because of our commitment to world missions, we are involved on a daily basis in cooperative efforts to minister to impoverished people all over the world. The Southern Baptist Convention alone has an international mission force of over 5,000 missionaries—many of them engaged daily in helping to provide food, clean water, and relief to the world's poor. This is why the SBC has spoken out regarding the effects of some environmental proposals on "economic well-being," not chiefly out of a personal concern for the personal costs of endless regulation but for the social costs as well.

Evangelical ethicist E. Calvin Beisner argued to the Vatican's Pontifical Council for Justice and Peace [Appendix C], "Because energy is an essential component in economic production, reducing its use and driving up its costs—often reducing its use *by* driving up its costs—will slow economic development in poor communities, reduce overall productivity, and increase costs of all goods, including the food, clothing, shelter, and other goods most essential to the poor." Beisner further contends that the tremendous resources involved in a carbon dioxide emissions reduction policy could divert resources needed for the more crucial obviously needed tasks of providing electrification, water purification, and sanitation for the world's poor. The SBC Ethics and Religious Liberty Commission (ERLC) expressed similar concern through its president Richard Land's statement: "Draconian measures to reduce reliance on fossil fuels will hurt the poor because it will not allow them to develop their societies. Studies have shown that developed societies are actually cleaner societies and better able to adapt to changes in climate."[10] This warning deserves careful attention.

In a public policy statement on this issue, the ERLC has acknowledged a probable human contribution to climate change, while noting that the extent of humanity's role and the possibility of curbing such climate change effectively are not yet conclusive [Appendix E]. The ERLC statement therefore concludes:

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[9] Philip Jenkins, *The Next Christendom: The Coming of Global Christianity* (New York: Oxford University Press, 2002).

[10] Gregory Tomlin, "Gore's Oscar, Global Warming Debated Among Evangelicals," *Baptist Press*, 9 March 2007.

> The Christian view on global warming needs to be based on theology and reason, and this position on global warming has been developed under these guidelines. God has given man a biblical requirement for stewardship (Gen. 2:15), which means that humans should both use and care for the environment. Devaluing the use and overemphasizing the care for the environment is not a proper biblical practice and neither is the opposite. Biblical stewardship demands a dual relationship between use and care in order to develop industry and protect against abuse. In the current global warming debate there are simply not enough facts to mandate an extreme limiting of the use of natural resources to guard against "abuse" that only has hypothetical consequences and goes against the informed opinions of thousands of knowledgeable scientists and climatologists.

The SBC and other like-minded evangelical groups are not opposed to environmental protection. We have no pronouncements on what Jesus would drive. We are sure that He would call us to protect the earth, to care for the poor, and to protect innocent human life. We forthrightly state that our understanding of this matter has everything to do with theological considerations—as do many of the proposals from environmentalists sounding the alarm on global warming. As citizens of a Republic, we do not demand that our fellow citizens adopt our theological convictions, though we are quite willing to discuss how our commitment to biblical principles shapes the questions we ask on such matters. We are, however, concerned about the ways in which religious arguments are used in this debate, possibly with harmful consequences both for public policy and for the mission of the church.

Thank you, senators, for your time and consideration. I welcome any questions you may have.

Appendix A

Southern Baptist Convention

"Resolution On Environmental Stewardship"

June 1990

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SBC Resolutions

Resolution On Environmental Stewardship

June 1990

WHEREAS, "The earth is the Lord's and the fullness thereof, the world and those who dwell therein" (Psalm 24-1:); and

WHEREAS, "God called the dry land Earth, and the waters that were gathered together He called Seas. And God saw that it was good" (Genesis 1:10); and

WHEREAS, Christians recognize God as Father, Son, and Holy Spirit and as Creator, Redeemer, and Sustainer of the created order; and

WHEREAS, "The Lord God took the man and put him in the Garden of Eden to till it and keep it" (Genesis 2:15); and

WHEREAS, The sinfulness of the human race has led to the destruction of the created order (Romans 8:22) as evidenced by the endangerment of the earth by pollution, human extravagance and wastefulness, soil depletion and erosion, and general misuse of creation; and

WHEREAS, We are forbidden to worship the creation (Matthew 4:10, Romans 1:25), but are charged by our Creator with caring for creation (Genesis 1:28, 2:15), and are called to be faithful stewards of that which is entrusted to us (Luke 16:1-13).

THEREFORE, BE IT RESOLVED, That we, the messengers of the Southern Baptist Convention, meeting in New Orleans, Louisiana, June 12-14, 1990, recognize publicly our responsibility to God to be better stewards of all of the created order; and

BE IT FURTHER RESOLVED, That the messengers in the session for this Southern Baptist Convention covenant with one another to seek ways personally and corporately to care for the earth and all those who dwell therein; and

BE IF FURTHER RESOLVED, That individuals, churches, and other Baptist groups be encouraged to make an environmentally responsible ethic a part of our lifestyle and evangelistic witness.

New Orleans, Louisiana

Appendix B

Southern Baptist Convention

"8. On Environmentalism And Evangelicals"

June 2006

Southern Baptists
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SBC Resolutions

8. On Environmentalism And Evangelicals

June 2006

WHEREAS, In the beginning God created the heavens and the earth (Genesis 1:1), declared it good (Genesis 1:4, 10, 12, 18, 21, 32), and it reveals His glory (Psalm 19:1-6); and

WHEREAS, God created men and women in His image and likeness (Genesis 1:26-27), placing them in value above the rest of creation and commanding them to exercise caring stewardship and dominion over the earth and environment (Genesis 1:28; cf. Psalm 8); and

WHEREAS, Mankind as free moral agents willfully disobeyed God, plunging the whole creation into corruption because of our sin (Genesis 3:1-19), from which the fallen creation awaits restoration (Romans 8:19-22); and

WHEREAS, Since the fall into sin, humans have often ignored the Creator, shirked their stewardship of the environment, and further defiled the good creation; and

WHEREAS, Some in our culture have completely rejected God the Father in favor of deifying "Mother Earth," made environmentalism into a neo-pagan religion, and elevated animal and plant life to the place of equal—or greater—value with human life; and

WHEREAS, The scientific community is divided on the effects of mankind's impact on the environment; and

WHEREAS, Some environmental activists are seeking to advance a political agenda based on disputed claims, which not only impacts public policy and in turn our economic well-being, but also seeks to indoctrinate the public, particularly students in public institutions; and

WHEREAS, Environmentalism is threatening to become a wedge issue to divide the evangelical community and further distract its members from the priority of the Great Commission; now, therefore, be it

RESOLVED, That the messengers to the Southern Baptist Convention meeting in Greensboro, North Carolina, June 13-14, 2006, renew our commitment to God's command to exercise caring stewardship and wise dominion over the creation (Genesis 1:28); and be it further

RESOLVED, That we urge all Southern Baptists toward the conservation and

preservation of our natural resources for future generations while respecting ownership and property rights; and be it further

RESOLVED, That we encourage public policy and private enterprise efforts that seek to improve the environment based on sound scientific and technological research; and be it further

RESOLVED, That we resist alliances with extreme environmental groups whose positions contradict biblical principles (2 Chronicles 19:2) and that we oppose solutions based on questionable science, which bar access to natural resources and unnecessarily restrict economic development, resulting in less economic opportunity for our poorest citizens; and be it finally

RESOLVED, That we not only reaffirm our God-given responsibility of caring for the creation, but above all, that we continue to commit ourselves to the Great Commission to take the Good News of Jesus Christ to people of every tribe, tongue, and nation thus bringing glory to the One who will make all things new at His coming (Revelation 21:1).

Greensboro, NC

Appendix C

E. Calvin Beisner

"Climate Change
and the Responsibility of Civil Society:
Some Biblico-Theological Aspects
of the Global Warming Debate"

April 2007

Climate Change and the Responsibility of Civil Society: Some Biblico-Theological Aspects of the Global Warming Debate

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Comments delivered at
"Climate Change and Development,"
a conference hosted by the
Pontifical Council for Justice and Peace
Vatican City, April 27-28, 2007

It is a great privilege for me to speak to this august body, and I am grateful to you, Cardinal Martino, for your invitation for one named Calvin to speak for a Vatican conference–but though I consider my name to be providentially given, perhaps you will take comfort from knowing that my parents named me not after John Calvin but after the American President Calvin Coolidge.

I cannot hope to address the scientific aspects of the ongoing debate over climate change and climate change policy at the level of erudition of the scientists among us. I am a scientific layman who, in an effort to develop rational understandings of these issues, has read many books on the science of climate change, hundreds of refereed and non-refereed but scholarly articles, and thousands of popular articles. In light of those readings, I am persuaded, though I recognize my fallibility, that:

1. Foreseeable global warming will have moderate and mixed (not only harmful but also helpful), not catastrophic, consequences for humanity–including the poor–and the rest of the world's inhabitants.

2. Natural causes almost certainly account for a large majority of global warming in both the last thirty and the last one hundred fifty years, which together constitute an episode in the natural rising and falling cycles of global average temperature. Human emissions of carbon dioxide and other greenhouse gases are probably a real but proportionally insignificant contributor to its causes.

3. Reducing carbon dioxide emissions would have at most an insignificant impact on the rate, quantity, and duration of global warming and would not significantly reduce alleged harmful effects.

4. Government-mandated carbon dioxide emissions reductions not only would not significantly curtail global warming or reduce its harmful effects but also would probably cause greater

harm than good to humanity–especially the poor– and other species, while offering virtually no benefit. Among the harms it would likely cause are not only reduced economic development because of higher energy costs, harming especially the poor who desperately need economic development spurred by abundant and affordable energy, but also the withholding of the aerial fertilization effect of heightened CO2 mentioned yesterday by Dr. Craig Idso, a knock-on effect of which would be the necessity of farming more land to feed humanity than would otherwise be needed, adding to stress on biodiversity.

5. In light of all the above, the most prudent response is not to try (almost certainly unsuccessfully and at enormous cost) to prevent or reduce whatever slight warming might really occur. It is instead to prepare to adapt by fostering means that will effectively protect humanity–especially the poor–not only from whatever harms might be anticipated from global warming but also from harms that might be fostered by other developments, including global cooling (which will certainly come in time).

I have co-authored a paper that summarizes extensive scientific and economic evidence for this perspective, "A Call to Truth, Prudence, and Protection of the Poor: An Evangelical Response to Global Warming," printed for you here and available online at www.interfaithstewardship.org. I prepared the paper with three co-authors–climatologist Dr. Roy Spencer, senior research scientist at the University of Alabama at Huntsville and formerly of NASA, who is one of two scientists in charge of the US satellite remote temperature sensing program (the other being John Christy, another critic of AGW dogma); environmental economist Dr. Ross McKitrick, of the University of Guelph in Ontario, Canada, who is famous for his work refuting the "hockey stick" graph of Michael Mann and associates; and Paul K. Driessen, an energy policy analyst with the Congress of Racial Equality. Others in this gathering, however, have already ably discussed the science and, to some extent, the economics, so, speaking as a believing Christian, I shall focus on two other matters: some Biblico-theological considerations that should guide our understanding, and the impact of climate policy on the most vulnerable people among us.

Biblico-Theological Foundations–Part I

So, first, let me begin with some Biblico-theological considerations, and as a preliminary, let me defend their legitimacy in principle. Many in today's modernist and postmodernist world think it is illegitimate for theological principles to guide interpretation of scientific data. Yet that belief is itself theological and is therefore self-refuting. Ironically, those who rule out Biblico-theological matters from scientific discussion are acting in the very unscientific manner of turning a blind eye to some data. In contrast, Christians, recognizing the Bible as the Word of God written, must take its statements as part of the data they consider. That is, the consistent Christian must take *more* data into account than does the non-Christian. There is no neutrality. Everyone undertakes his studies presupposing either the relevance or the irrelevance of Biblico-theological data, and the Christian need not be embarrassed to think them relevant.

Although many might be addressed, I shall limit myself to just three Biblico-theological concerns at the start, the doctrines of creation and providence, and the virtue of humility. I shall raise one

more as my conclusion.

Consider the doctrine of creation. The Bible teaches that our wise Creator made a magnificent creation and, when finished, pronounced it "very good" (Genesis 1:31). In contrast, a common theme of almost all environmental writings is that the Earth is fragile. That certainly is a central assumption of the dogma of manmade global warming alarmism. The dogma tells us that exceedingly tiny changes in atmospheric chemistry cause changes in global average temperature so great as to have catastrophic effects on humanity and the rest of the environment. But think about that for a moment. Does a wise engineer design a system so that the tiniest change can throw it into irreversible, chaotic degradation? Certainly not. He designs it with positive and negative feedback mechanisms that balance each other out and maintain not perfect equilibrium but something tolerably close to it. It is far more consistent with the Biblical doctrine of creation to think God has so designed the Earth than to think He made it so that tiny fluctuations in atmospheric chemistry can threaten human civilization and life itself.

Now consider the doctrine of providence, and here I make reference to two passages in the Bible that bear specifically on some of the greatest fears associated with global warming alarmism.

In Genesis 8:21-22, after the Flood, God said, "While the earth remains, seedtime and harvest, and cold and heat, and summer and winter, and day and night shall not cease." This is an example of a poetic device called merism, in which contrasting extremes denote the whole range of something. Here God promised Himself–and His promise cannot fail–that seedtime and harvest, cold and heat, summer and winter, day and night shall not cease. That is, the cycles necessary for human beings and other life on Earth to thrive will continue as long as Earth abides. For Christians, this should raise the level of evidence required to persuade us that manmade greenhouse gases and other emissions will stop or seriously harm the cycles on which life depends–as the poetic device implies, not only the cycles of seedtime and harvest, cold and heat, summer and winter, and day and night, but also, e.g., of the North Atlantic Decadal Oscillation, the Thermohaline Circulation, the Pacific Multidecadal Oscillation, and the El Nino/La Nina cycles. This does not mean we should ignore scientific evidence, but it does give us a prior assumption in interpreting it.

Again, in Psalm 104:6-9, the psalmist, inspired by the Holy Spirit, tells us what God did to land and sea during and after the Flood: "You covered [the land] with the deep as with a garment; the waters were standing above the mountains. At Your rebuke they fled, at the sound of Your thunder they hurried away. The mountains rose; the valleys sank down to the place which You established for them. You set a boundary that they may not pass over, so that they will not return to cover the earth." This is a summary of God's promise in the covenant with Noah after the Flood, recorded in Genesis 9:9-17, and reflected in His challenge to Job:

> . . . who enclosed the sea with doors when, bursting forth, it went out from the womb; when I made a cloud its garment and thick darkness its swaddling band, and I placed boundaries on it and set a bolt and doors, and I said, "Thus far you shall come, but no farther; and here shall your proud waves stop"? [Job 38:8-11]

One of the greatest fears connected with global warming is of rising sea levels inundating low-lying populated areas and forcing mass migrations. Again, while our reading of these passages does not justify utter disregard of scientific debates about sea level, the arguments that sea level rise is more likely quite small than quite large are more consistent with these data than vice versa.

I am not suggesting that everyone should accept my interpretation and application of these passages. There is room for hermeneutical disagreement. But Christians certainly cannot in good conscience simply ignore passages like these, which certainly appear *prima facie* to be relevant to the discussion. Those who, in considering these issues, ignore these passages deprive themselves of the input of the inspired Word of God when they ought instead to study it and believe it.

Finally, let me refer just briefly to humility. In re-reading Job 38 this morning, first of those marvelous chapters in which God challenges Job to explain creation, I was reminded of the awe I felt as I read the discussion of the limits of human understanding inherent in turbulent fluid dynamics in Christopher Essex and Ross McKitrick's *Taken By Storm* and more recently Henrik Svensmark and Nigel Calder's just-released *The Chilling Stars: A New Theory of Climate Change*. These books express in elegant scientific terms what the author of Job put in poetic terms: that there are mysteries that defy human comprehension–that indeed as the boundaries of our understanding grow, so do the boundaries of our ignorance. Such realizations should provoke a humble recognition in every one of us that we might be wrong.

The Impact of Climate Policy on the Poor

Now let me turn to my second major topic, more in keeping with the title assigned me, climate change and the responsibility of civil society: the impact of climate policy on the poor. In doing so, I am not turning away from Biblico-theological considerations but focusing on one particular one that binds all, regardless of our interpretation of those passages that seem specifically to address global climate concerns: the Christian faith's insistence that all acts must be judged in light of their effects on the most vulnerable among us. The Apostle Paul reported that the leaders of the church asked him to remember the poor and added that this was "the very thing [he] was eager to do" (Galatians 2:10). When we consider what policies to pursue in response to climate change, we, too, must first of all remember the poor.

I believe a policy to reduce future global warming by capping carbon dioxide emissions would be economically devastating to the world's poor–a point made by Ambassador Estrada Oyuela. Because energy is an essential component in economic production, reducing its use and driving up its costs–often reducing its use *by* driving up its costs–will slow economic development in poor communities, reduce overall productivity, and increase costs of all goods, including the food, clothing, shelter, and other goods most essential to the poor.

It is a common claim of many supporters of such a policy that those who oppose it do so only because they want to continue a profligate way of living. Let me make this perfectly clear. Although I think such a policy is bad science and bad economics, I care little about its effect on the wealthiest countries of the world. If United States GDP per capita growth rate were reduced

by a half a percentage point or so in the quixotic quest to fight global warming, the effect on Americans would be a minor adjustment at the margin of our opulence. Ho hum. But to raise the cost and reduce the availability of energy to the world's poor is unconscionable. It would prolong for decades or generations the high rates of illness and premature death that are the inevitable accompaniments of poverty.

One of the ways in which a CO_2 emissions reduction policy would hurt the poor is simply by diverting vast resources away from more helpful endeavors. How vast? The worldwide cost of full compliance with just the first step of the Kyoto Protocol would likely be from $200 billion to $1 trillion in constant dollars *every year* from 2001 through 2050. That means combined costs of $10 trillion to $50 trillion. The temperature reductions purchased would be trivial. According to climatologist, global warming alarmist, and Kyoto supporter Tom Wigley, "Global mean reductions [in warming by 2100] for the three scenarios [considered by the IPCC] are small, 0.08-0.28°C." Others are not so optimistic. University of Virginia climatologist Patrick Michaels estimated that "the Kyoto Protocol . . ., if adhered to by every signatory (including the United States)[,] would only reduce surface temperature by 0.07° C in fifty years." In either case, the temperature reduction is so tiny as to disappear in annual fluctuation and have no significant impact on consequences. As a result, Kyoto's supporters also say it is just a first step–that we shall need many more such treaties. National Center for Atmospheric Research scientist Jerry Mahlman says elimination of human-induced warming would require "forty successful Kyotos." Others say thirty. That forces us back to counting costs again. The annual cost of *twenty* "Kyotos" would be $4 trillion to $20 trillion, or about 9 percent to 45 percent of present annual gross world product. The cost for the full fifty years of $200 trillion to $1 quadrillion.

As shown by the Copenhagen Consensus and other studies, other investments of the costs of mitigation would be of much greater benefit. It would cost a one-time investment of only about $200 billion, and a much smaller amount annually after that, to provide clean drinking water and sanitation to everyone in the world who doesn't already have them. But if we spend $200 billion to reduce carbon emissions, we can't spend that money to provide drinking water and sanitation to the world's poor. But providing those two simple services would prevent, according to the World Health Organization, two to three million premature deaths and about half a billion serious illnesses every year.

What the world's poor most need is not the hypothetical and probably never-to-be-achieved reduction of future global warming by a tiny fraction of a degree but economic development to make affordable the amenities we take for granted. Affordable, plentiful energy is an indispensable condition of that economic development. But forced carbon dioxide emission reductions would push energy prices upward, making everything produced and transported with energy–which is literally *everything* our economies produce–more expensive. Thus the policy would prolong the suffering of the world's poor, who, for instance, are forced to use wood and dried dung as their principal fuels for cooking and heating–causing indoor air pollution that the World Health Organization estimates causes some 1.6 million premature deaths and many more millions of serious respiratory diseases, mostly among women and children, every year. Providing electricity

to their homes would help not only them but also other species, for they would then no longer need to speed deforestation and habitat loss in their quest for firewood. It would also enable them sooner to refrigerate food, reducing spoilage and consequently disease caused by consuming spoiled foods and hunger caused by throwing them away. Likewise, investing to improve their crop yields would not only reduce their suffering from hunger but also reduce the need for crop land, again reducing habitat destruction and thus pressure on species survival.

Poor countries have every right to develop their economies, ultimately creating greater environmental awareness and reaching an improved economic and technological ability to achieve greater energy efficiency, pollution control, and environmental improvement. Similarly, developed nations have a duty to refrain from imposing restrictions that would make it harder for them to do so. Only in this way can both human and ecological goals be met.

Biblico-Theological Consideration–Part II

I could go on to address a variety of concerns about how the debate is carried on. As a logic teacher, I am regularly grieved by the illogic often apparent in alarmists' arguments (e.g., *non causa pro causa*, correlation taken for causation, consensus rather than data and explanation in science, *argumentum ad verecundiam*, and *argumentum ad hominem*, etc.). I could discuss the need for charity and mutual respect, or the misuse of arguments from prudence by resting them on a *petitio principii* of the reality, magnitude, and negative impacts of manmade warming, or the sad tendency for people to reach conclusions before carefully examining counter-arguments–and then to ignore the counter-arguments or even to declare flatly that they don't exist (which makes me wonder who slipped me the drugs that caused all my hallucinations when thought I was reading such counter-arguments). I could point to problems of media exaggeration and sensationalism. I could talk of unintended consequences, e.g., ethanol production in US pushing up beef and pork prices for Americans and, much worse, corn and therefore tortilla prices in Mexico. But time is limited. Let me turn therefore to one last theological point.

Psalm 19 tells us that the heavens declare the glory of God, the firmament shows His handiwork. Although natural revelation, the creation, cannot reveal the gospel by itself, having learned the gospel from the Bible, we can see analogies, types, of redemption in the created order. Paul did this when in 1 Corinthians 15 he compared the resurrection of Christ, and the general resurrection, to the planting and sprouting of seeds.

I want to conclude by tying theology and science together, adapting Paul's typological/analogical method to the debate over carbon dioxide and climate change. Every doubling of carbon dioxide concentration in the atmosphere brings an average 35 percent increase in plant growth efficiency. Now, where does the added carbon dioxide come from? It comes mostly from our burning fossil fuels, especially coal and petroleum. Where do they come from? We dig or pump them up out of the ground. But how did they get there? They are the remains of trillions of plants and animals, buried deep under layers of sediment and transformed by pressure and heat.

According to both the Bible and sound science, the great pools of oil and veins of coal formed from sudden, simultaneous deposits of vast numbers of plants and animals in a great geological cataclysm–what Christians recognize as the Flood of Noah's time. That flood was an exercise of God's judgment on sin.

Think about it: God condemns the world for mankind's sin. Plants and animals die. They are buried. We remove them from the ground, refine them, and burn them to provide energy for all our economic activities–to produce all the goods and services that enhance our lives. In the process, we release carbon dioxide that has been stored in them. The carbon dioxide enhances plant life. Since plants are at the bottom of the food chain, that means it enhances all other life, too.

Sound familiar? Something dies, is buried, is raised up from the dead, and gives life. Haven't you heard that before? Yes! Jesus Christ died under God's judgment, not for His sins but for ours; He was buried; He rose again from the dead. Listen to how the Apostle Paul put it in 1 Corinthians 15:42-45. In the resurrection, the human body, particularly the body of our Lord,

> is sown a perishable body, it is raised an imperishable body; it is sown in dishonor, it is raised in glory; it is sown in weakness, it is raised in power; it is sown a natural body, it is raised a spiritual body. If there is a natural body, there is also a spiritual body. So also it is written, "The first man, Adam, became a living soul." The last Adam became a life-giving spirit.

This is the gospel that is the power of God for salvation to everyone who believes (Romans 1:17). The carbon cycle is a *type* of that gospel. Paul argued typologically about the resurrection. The resurrection is typified in the sowing of seed: it falls into the ground, apparently dead and rotting, but it springs up in new life. So also in the carbon cycle we have a picture, a *type*, of the redeeming work of Christ: Christ died, was buried, and rose from the grave to give life. Analogously, plants and animals died, were buried, and now, raised from the grave, they, too, give life. The sad irony is that millions of people *fear* what should lead them instead to *praise* God. Added carbon dioxide from fossil fuels isn't *pollution*; it's part of the *solution* to human poverty and to the thriving of the whole Earth.

How will we respond to this good news–this typological "gospel" of the beneficial effects of enhanced carbon dioxide on all earthly life? It is not, of course, to be confused with the saving gospel of justification by faith exemplified by Abraham, who "believed God and it was credited to him for righteousness" (Romans 4:3). But it is good news of its own sort. It is a remarkable type of the gospel of Christ's redeeming death, burial, and resurrection. Will we doubt and reject it? Or will we follow the pattern of Abraham, the father of all who believe, by believing it?

Suggested Readings

E. Calvin Beisner (environmental ethicist), Paul K. Driessen (energy policy analyst), Ross McKitrick (environmental economist), and Roy W. Spencer (climatologist), "A Call to Truth, Prudence, and Protection of the

Poor: An Evangelical Response to Global Warming," and "An Open Letter to the Signers of 'Climate Change: an Evangelical Call to Action,' and Others Concerned About Global Warming," at www.interfaithstewardship.org. The "Call to Truth" contains extensive scientific evidence and documentation and is endorsed now by 149 leaders, including many climatologists, meteorologists, and other climate scientists, environmental and developmental economists, plus theologians, pastors, and leaders in Christian education and missions.

E. Calvin Beisner, "Important Developments on Global Warming in 2006," also at www.interfaithstewardship.org.

E. Calvin Beisner, Paul K. Driessen, and Roy W. Spencer, "An Examination of the Scientific, Ethical, and Theological Implications of Climate Change Policy," also at www.interfaithstewardship.org.

You can subscribe to the newsletter of the Interfaith Stewardship Alliance by going to http://www.interfaithstewardship.org/pages/contact.php and completing the online form.

Christopher Essex (mathematician/physicist specializing in climate physics) and Ross McKitrick (environmental economist), *Taken By Storm: The Troubled Science, Policy and Politics of Global Warming* (Toronto: Key Porter Books, 2002; second edition forthcoming, April 2007). This is *the best* book I know for understanding the science of the global warming debate–thrilling reading.

D. James Kennedy and E. Calvin Beisner, *Overheated: a Reasoned Look at the Global Warming Debate* (Ft. Lauderdale, FL: Coral Ridge Ministries, 2007). *Truths that Transform* radio interview transcript, basic overview of the controversy and reasons for the view presented in this lecture.

Patrick J. Michaels, *Meltdown: The Predictable Distortion of Global Warming by Scientists, Politicians, and the Media* (Washington: Cato Institute, 2005). Clear and understandable.

Patrick J. Michaels, ed., *Shattered Consensus: The True State of Global Warming* (Lanham, MD: Rowman & Littlefield, 2005). Chapters by specialists show that the best science destroys the vaunted "consensus" on catastrophic human-induced global warming.

S. Fred Singer and Dennis T. Avery, *Unstoppable Global Warming: Every 1,500 Years* (Lanham, MD: Rowman & Littlefield, 2006). An amazing, kaleidoscopic review of vast arrays of evidence for superimposing cycles of warming and cooling throughout geologic and human history the implication of which is that current and foreseeable warming is well within bounds of natural variability.

Henrik Svensmark and Nigel Calder, *The Chilling Stars: A New Theory of Climate Change* (UK: Icon Books, 2007). Presents evidence and explanation for the theory that variations in solar magnetic wind are the principal driver of climate change.

Appendix D

E. Calvin Beisner, Paul K. Driessen,
Ross McKitrick, and Roy W. Spencer,
Interfaith Stewardship Alliance

"A Call to Truth, Prudence, and Protection of the Poor: An Evangelical Response to Global Warming"

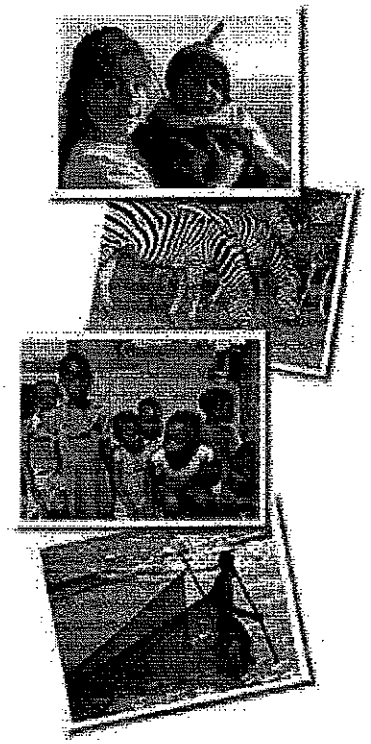
2006

Dominion. Stewardship. Conservation.

Interfaith Stewardship Alliance

A Call to Truth, Prudence, and Protection of the Poor: An Evangelical Response to Global Warming

By E. Calvin Beisner, Ph.D., Paul K. Driessen, Esq.,
Ross McKitrick, Ph.D., and Roy W. Spencer, Ph.D.



A Call to Truth, Prudence, and Protection of the Poor: An Evangelical Response to Global Warming

Preamble

As evangelicals, we commend those who signed the Evangelical Climate Initiative's "Climate Change: An Evangelical Call to Action" for speaking out on a public issue of ethical concern. We share the same Biblical world view, theology, and ethics. We are motivated by the same deep and genuine concern they express for the poor not only of our own nation but of the world. That very concern compels us to express our disagreement with their "Call to Action" and to offer an alternative that would improve the lot of the poor more surely and effectively.

It is important to speak directly to the issue of motive. We do not question the motive of those who produced or signed the ECI's "Call to Action." We assume that they acted out of genuine concern for the world's poor and others and considered their action justified by scientific, economic, theological, and ethical facts. We trust that they will render us the same respect.

It is not sufficient, however, to have good intentions. They must be linked to sound understanding of relevant principles, theories, and facts. As we shall argue below, that linkage is lacking for the ECI's "Call to Action."

We present our case in two stages. First, we respond point-by-point to the ECI's four claims and the four assumptions on which its "Call to Action" rests. Second, we present five contrary conclusions. The first four follow from the evidence presented in our critique of the ECI's claims. The fifth sets forth our own alternative call to action to protect the poor, the rest of humanity, and the rest of the world's inhabitants–not only from global warming but also from other potential environmental threats.

Response to the ECI's Four Assumptions

The ECI's "Call to Action" rests on the following four assumptions:

- Human emissions of carbon dioxide and other greenhouse gases into the atmosphere as we burn fuels for energy are the main cause of global warming.
- Global warming is not only real (which we do not contest) but is almost certainly going to be catastrophic in its consequences for humanity–especially the poor.
- Reducing carbon dioxide emissions would so curtail global warming as to significantly reduce its anticipated harmful effects.
- Mandatory carbon dioxide emissions reductions would achieve that end with overall effects that would be more beneficial than harmful to humanity and the rest of the world's inhabitants.

All of these assumptions, we shall argue below, are false, probably false, or exaggerated.

ECI's First Assumption: CO_2 emissions from fossil fuels are the main cause of warming.

The ECI's **first assumption** appears under "Claim 1: **Human-Induced Climate Change is Real.**" While almost certainly true (since humans have long affected climates in which they live), the claim is too vague to have policy implications. It is *possible*, under some assumptions, to attribute *all* recent globally averaged warming to mankind. But our knowledge of climate history also reveals substantial natural variability. The mechanisms driving natural climate variations are too poorly understood to be included accurately in computer climate models. Hence, the models risk overstating human influence.

For support the "Call" cites the Executive Summary of the *Third Assessment Report* (2001) of the Intergovernmental Panel on Climate Change (IPCC) as attributing "*most* of the warming" (emphasis added) to human activities. However, the Executive Summary does not reflect the depth of scientific uncertainty embodied in the report and was written by government negotiators, not the scientific panel itself. Indeed, the wording of the conclusion supplied by the scientific panel as of the close of scientific review did not attribute "most" warming to humans. Instead it emphasized the existing uncertainties: "From the body of evidence since IPCC (1996), we conclude that there has been *a discernible* human influence on global climate. Studies are beginning to separate the contributions to observed climate change attributable to individual external influences, both anthropogenic and natural. This work suggests that anthropogenic greenhouse gases are *a substantial* contributor to the observed warming, especially over the past 30 years. However, the accuracy of these estimates continues to be limited by *uncertainties* in estimates of internal variability, natural and anthropogenic forcing, and the climate response to external forcing."[1] While much valuable scientific research is reflected by the IPCC's reports, their executive summaries have been so politicized as to prompt MIT climate scientist and IPCC participant Richard Lindzen to testify before the United States Senate, "I personally witnessed coauthors forced to assert their 'green' credentials in defense of their statements."[2]

Further, a number of studies support the conclusion that natural causes–e.g. fluctuations in solar output,[3] changes in cloud forcing,[4] and precipitation microphysics[5]–could outweigh human CO_2

[1]Government and Expert Review Draft, IPCC Working Group 1 Third Assessment Report, 5, emphases added. The "IPCC is as much a collection of government bureaucrats as it is of working scientists. . . . only about 33 percent of the 200+ 'lead authors' are in fact climate scientists. Consequently, the 'consensus' that these documents achieve is in fact determined by a majority opinion that is not necessarily formally trained in the subject matter." Patrick J. Michaels, *Meltdown: The Predictable Distortion of Global Warming by Scientists, Politicians, and the Media* (Washington: Cato Institute, 2004), 22.

[2]"Testimony of Richard S. Lindzen before the Senate Environment and Public Works Committee on 2 May 2001," online at http://epw.senate.gov/107th/lin_0502.htm.

[3]The IPCC attributes the whole warming of the first half of the twentieth century–about 0.5° C–to solar variability. John T. Houghton, *et al.*, *Climate Change 2001: The Scientific Basis. Contribution of Working Group I to the Third Assessment Report of the Intergovernmental Panel on Climate Change* (Cambridge: Cambridge University Press, 2001),

emissions as causes of the current global warmth.[6] Other studies find that rising CO_2 follows rather than leads warming and thus is not its cause but might be its effect.[7] In addition, other human activities (e.g., land use conversion for agriculture and cities, particulate pollution) cause regional climatic changes that go largely unmentioned. Thus the human-induced part of the warming trend is only partly driven by CO_2 and other manmade greenhouse gases. Recently sixty topic-qualified scientists asserted that "global climate changes all the time due to natural causes and the human impact still remains impossible to distinguish from this natural noise," and that "observational evidence does not support today's computer climate models, so there is little reason to trust model predictions of the future."[8]

The discerning reader of the ECI statement should ask: *How much* of current global warming is man-made versus natural? *How much* future warming can we reasonably expect? *What changes* in human behavior that affect climate may be anticipated, under *what conditions*? *What difference* will such changes make to the world's climate? And what would it actually take *to fix the alleged problem*? In other words, the **first assumption**, which by itself suggests no policy, only becomes relevant when coupled with the second.

ECI's Second Assumption: Global Warming Will Be Catastrophic, Especially for the Poor

The ECI's **second assumption** appears under "Claim 2: **The Consequences of Climate Change**

697.

[4]A discussion of cloud variations as a cause of natural climate variability is contained in Climate Research Committee, Board on Atmospheric Sciences and Climate, Commission on Geosciences, Environment, and Resources of the National Research Council, "Natural Climate Variability On Decade-to-Century Time Scales" (Washington, D.C.: National Academy Press, 1995), online at: http://darwin.nap.edu/books/0309054494/html.

[5]The precipitation efficiency uncertainties in climate modeling (and thus our theoretical understanding of how these things can be involved in natural climate fluctuations) are discussed in N. O. Renno, K.A. Emanuel, and P.H. Stone, "Radiative-convective model with an explicit hydrologic cycle 1. Formulation and sensitivity to model parameters," *Journal of Geophysical Research* 99 (July 10, 1994), 14,429-14,441. The end of the abstract says: "The cumulus convection schemes currently in use in general circulation models bypass the microphysical processes by making arbitrary moistening assumptions. We suggest they are inadequate for climate change studies."

[6]Such natural causes--especially fluctuations in solar energy output, changes in earth's orbit and tilt (The Marian Koshland Science Museum of the National Academy of Sciences explains and illustrates these well in "Global Warming Facts & Our Future" at http://www.koshland-science-museum.org/exhibitgcc/causes08.isp.), and other long and (geologically) short cycles--certainly outweigh human CO_2 emissions as causes of climate change in history. See, e.g., S. Fred Singer and Dennis T. Avery, "The Physical Evidence of Earth's Unstoppable 1,500-Year Climate Cycle" (Dallas: National Center for Policy Analysis, NCPA Policy Report No. 279, 2005).

[7]Robert H. Essenhigh, "Does CO_2 really drive global warming?" *Chemical Innovation* 31:5 (May 2001), 44-46; online at http://www.pubs.acs.org/subscribe/journals/ci/31/special/may01_viewpoint.html; H. Fischer, *et al.*, "Ice core record of atmospheric CO_2 around the last three glacial terminations," *Science* 283, (1999): 1712-1714; U. Siegenthaler, et al., "Stable carbon cycle-climate relationship during the late Pleistocene," *Science* 310:5752 (November 25, 2005), 1313-1317.

[8]Letter to Canadian Prime Minister Stephen Harper, published as "Open Kyoto to debate: Sixty scientists call on Harper to revisit the science of global warming," *Financial Post*, April 6, 2006, at http://www.canada.com/nationalpost/financialpost/story.html?id=3711460e-bd5a-475d-a6be-4db87559d605. A complete list of signers of this letter is in the Appendix of this paper.

Will Be Significant, and Will Hit the Poor the Hardest." We shall respond separately to the two parts of this claim.

The first part asserts that "the consequences of climate change will be significant." It is impossible to quantify what is meant by "significant," but the "Call to Action" goes on to list a variety of consequences, asserts without evidence that these will be hardest on the poor, and concludes, "Millions of people could die in this century because of climate change, most of them our poorest global neighbors."

> The "claim that climate sensitivity has as much as a 5% chance of exceeding 4.5° C is not a position that we would care to defend with any vigour, since . . . we are unaware of any significant evidence in favour of such a high value."–J. D. Annan and J. C. Hargreaves

Catastrophic climate scenarios critically depend on the extremely unlikely assumption that global average temperature would rise 6° C (10.8° F) or more in response to doubled CO_2. But more credible estimates of climate sensitivity to doubled CO_2 have been in the range of 1.5° to 4.5° C (2.7° to 8.1° F). Researchers using several independent lines of evidence asserted a "maximum likelihood estimate . . . close to 3° C" (5.4° F). They concluded, "our implied claim that climate sensitivity actually has as much as a 5% chance of exceeding 4.5° C is not a position that we would care to defend with any vigour, since even if it is hard to formally rule it out, we are unaware of any significant evidence in favour of such a high value."[9] It is very unlikely that warming in that range would cause catastrophic consequences. Why? Among other reasons, because CO_2-induced warming will occur mostly in winter, mostly in polar regions, and mostly at night. But in polar regions, where winter night temperatures range far below freezing, an increase of 5.4° F is hardly likely to cause significant melting of polar ice caps or other problems.

Even if the recent strong warming trend (at most 1° F in the last thirty years) is entirely manmade (and it almost certainly is not), and even if it continues for another thirty years (as it might), global average temperature will only be at most 1° F warmer then than now. Predicting climate beyond then depends on assumptions about future use of fossil fuels. Such assumptions are dubious in light of continuous changes in energy sources throughout modern human history. Who could have predicted our current mix of energy sources a century-and-a-half ago, when wood, coal, and whale oil were the most important components and petroleum and natural gas were barely in use?

The ECI predicts that "*even small rises* [emphasis added] in global temperatures will have" a variety of supposedly disastrous impacts. In each instance, there is good reason to reject the prediction:

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[9] J. D. Annan and J. C. Hargreaves, "Using multiple observationally-based constraints to estimate climate sensitivity," *Geophysical Research Letters*, vol. 33, L06704, doi:10.1029/2005GL025259, 2006, online at http://www.agu.org/pubs/crossref/2006/2005GL025259.shtml; prepublication draft at http://www.jamstec.go.jp/frcgc/research/d5/jdannan/GRL_sensitivity.pdf. See also G. Hegerl, et al., "Climate sensitivity constrained by temperature reconstructions over the past seven centuries," *Nature* 440 (April 20, 2006): 1029-1032.

- **"sea level rise":** Contrary to visions of seawater inundating vast areas, model-average results from a mid-range scenario of the IPCC (a scenario that itself probably exaggerates warming) suggest a rise by A.D. 2100 of only about 0.387 meter (15.24 inches, or 1.27 feet).[10] The rate of rise would be only 1.524 inches per decade, to which the few coastal settlements actually threatened could readily adapt by building dikes. Further, sea level has risen for centuries, since long before earth began to recover from the Little Ice Age (about 1550-1850) and long before fossil fuel burning could possibly have contributed to global warming. Through the twentieth century it rose about 0.18 meter (7.08 inches), and there is no reason to think the natural forces driving that rise will cease.[11] Even assuming that the IPCC's projection of twenty-first century sea level rise is correct, then, only about half of that rise would be attributable to current global warming–and, in turn, only a fraction of that to human-induced warming. Further, "Of the costs to the Netherlands, Bangladesh and various Pacific islands [i.e., the places at greatest risk], the costs of adapting to the changes in sea level are trivial compared with the costs of a global limitation of CO_2 emissions to prevent global warming."[12]

> IPCC mid-range scenario for sea level rise suggests only about 1.524 inches per decade, to which coastal settlements could readily adapt by building dikes.

- **"more frequent heat waves":** Though there is reason to doubt this prediction, its significance arises only from its impact on health and mortality. Heat-related death rates decline as people learn how, and become better able to afford, to protect themselves from excessive heat.[13] For example, while a heat wave in Chicago in 1995 caused about 700 heat-related deaths, a nearly

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[10]Sarah C. B. Raper and Roger J. Braithwaite, "Low sea level rise projections from mountain glaciers and ice caps under global warming," *Nature* 439 (January 19, 2006), 311-313; abstract online at http://www.nature.com/nature/journal/v439/n7074/abs/nature04448.html. Similarly, Indur M. Goklany writes, "In the IPCC's First Assessment Report , the estimated SLR between 1990 and 2100 was pegged at between 0.31 and 1.10 m with a best estimate of 0.66 m (FAR Scientific Assessment, page 277), and the Third Assessment Report's estimates were between 0.09 and 0.88 m with a 'central value' of 0.48m (TAR Scientific Assessment, page 671). Recently Church and White (2006) came out with an estimate of between 0.28 and 0.34 m." Indur M. Goklany, "Comments to the Stern Review on the Economics of Climate Change," March 17, 2006, at http://members.cox.net/goklany/Stern%202.pdf, p. 4, citing John A. Church and Neil J. White, "A 20th century acceleration in global sea-level rise," *Geophysical Research Letters*, vol. 33 (January 6, 2006), L01602, doi:10.1029/2005GL024826, abstract online at http://www.agu.org/pubs/crossref/2006/2005GL024826.shtml.

[11]B. C. Douglas and W. R. Peltier, *Physics Today*, March, 2002, 35-40; compare Church and White (2006), which estimates sea level rise from January 1870 to December 2004 of 0.195 m (4.21 inches), i.e., 0.015 m (0.31 inch) per decade.

[12]Deepak Lal, "Ecological Imperialism: The Prospective Costs of Kyoto for the Third World," in *The Costs of Kyoto: Climate Change Policy and Its Implications*, ed. Jonathan H. Adler (Washington: Competitive Enterprise Institute, 1997), 83-90, at 85-6. An implication of this is that economic development is an important step to protecting against heat waves, with or without global warming; a further implication is that because energy is a crucial component of economic development, affordable energy is necessary to protect against heat waves.

[13]R. E. Davis, *et al.*, "Decadal changes in heat-related human mortality in the eastern United States," *International Journal of Biometeorology* 47:166-75.

identical one only four years later caused only about 100, because of better advance warning from weather forecasters and protective steps.[14] Further, those who warn of more frequent heat waves should even more fervently herald less frequent severe cold snaps. The death rate from severe cold is nearly ten times as high as that from severe heat,[15] implying that global warming (assuming that it reduces cold snaps as much as it increases heat waves) should prevent more deaths from cold than it causes from heat.

- **"more frequent . . . droughts, and extreme weather events such as torrential rains and floods":** Actual projections assuming IPCC-forecast global warming call for more frequent droughts in some places, less frequent droughts in others, more frequent wet periods in some places, and less frequent wet periods in others. It is not possible, at the present state of the science, to be sure whether there will be a net increase of either droughts or wet periods globally or in most locales. However, while worldwide data are insufficient to justify any generalizations, we do know that there is no statistical correlation between global average temperature and droughts in the southwestern United States or even the United States as a whole,[16] a fact that puts the model forecasts into doubt. Further, in an increasingly wealthy world, the ability to distribute water and agricultural products efficiently will continue to improve, making societies more and more resilient to droughts–which will continue to occur with or without human influence on climate.

- **"increased tropical diseases in now-temperate regions":** Since the mosquitoes that carry *Plasmodium falciparum* (the malaria-causing parasite) require winter temperatures above about 61° to 64° F to survive, it seems intuitively likely that expanding the regions with winter lows above that range would result in increasing malaria rates. However, even in very cold climates there are places sheltered from cold in which the mosquitos can hibernate. Thus, malaria was common throughout Europe and even into the Arctic Circle even during the Little Ice Age and continued common through the end of World War II in Finland, Poland, Russia, around the Black Sea, and in thirty-six of the United States, including all northern border states from Washington through New York.[17] It is not temperatures that are most important for malaria control but elimination of suitable breeding grounds and the use of pesticides to lower the population of malarial mosquitoes and keep them out of homes. The

> The impacts of climate change on malaria, at least through 2084, will be trivial compared to non-climate change related factors.

[14]M. A. Palecki, S. A. Changnon, and K. E. Kunkel, "The nature and impacts of the July 1999 heat wave in the midwestern United States: Learning from the lessons of 1995," *Bulletin of the American Meteorological Society* 82:1353-1367.

[15]W. R. Keatinge, *et al.*, "Heat related mortality in warm and cold regions of Europe: observational study," *British Medical Journal* 321:670-673.

[16]O. W. Frauenfeld and R. E. Davis, "Midlatitude circulation patterns associated with decadal and interannual Pacific Ocean variability," *Geophysical Research Letters* 29, DOI: 10.1029/2002GL015743; Michaels, *Meltdown,* 138-142.

[17]Paul Reiter, "From Shakespeare to Defoe: malaria in England in the Little Ice Age," *Emerging Infectious Diseases* 6(1):1-10, at www.cdc.gov/ncidod/eid/vol6no1/reiter.htm.

IPCC suggested on the basis of mathematical models that by the 2080s global warming could put about 2-4 percent more people at risk for malaria. What this means is that 96 to 98 percent of people at risk of malaria would be at risk because of non-climate change related factors. In other words, the impacts of climate change on malaria, at least through 2085, will be trivial compared to non-climate change related factors.[18] The IPCC also noted that most of those newly at risk would be in middle- or high-income countries where infrastructure and health services would make infection and death or serious disability unlikely.[19] "Thus, the global study of *actual* malaria transmission shows 'remarkably few changes, even under the most extreme scenarios.'"[20] The resurgence of malaria in some African and Asian countries correlates not with changing temperatures but with the banning of DDT and shifts to less effective disease control methods, and it costs over a million premature deaths annually.

- **"hurricanes that are more intense":** The recent upswing in numbers and intensity of Atlantic hurricanes makes some people more receptive to claims that global warming might have such an effect. However, the National Oceanic and Atmospheric Administration (NOAA) concluded in a study announced in November 2005 that "the tropical multi-decadal signal is causing the increased Atlantic hurricane activity since 1995, and is not related to greenhouse warming."[21] More specifically,

The National Oceanic and Atmospheric Administration concluded in a study announced in November 2005 that "the tropical multi-decadal signal is causing the increased Atlantic hurricane activity since 1995, and is not related to greenhouse warming."

> claims of linkages between global warming and hurricane impacts are premature for three reasons. First, no connection has been established between greenhouse gas emissions and the observed behavior of hurricanes (Houghton et al. 2001; Walsh 2004). . . . Second, the peer-reviewed literature reflects that a scientific consensus exists that any future changes in hurricane intensities will likely be small in the context of observed variability (Knutson and Tuleya 2004; Henderson-Sellers et al. 1998), while the scientific problem of tropical cyclogenesis is so far from being solved that little can be said about possible changes in frequency. And third, under the assumptions of the IPCC,

[18] I. M. Goklany and D. King, "Climate Change and Malaria," *Science* 306:5693 (October 2004), 55-57.

[19] J. J. McCarthy, *et al.*, *Climate Change 2001: Impacts, Adaptation, and Vulnerability: Contribution of Working Group II to the Third Assessment Report of the Intergovernmental Panel on Climate Change* (Cambridge: Cambridge University Press, 2001), 9.7.1.1. Cited in Bjørn Lomborg, *The Skeptical Environmentalist: Measuring the Real State of the World*, rev. ed. (Cambridge: Cambridge University Press, 2001), 292.

[20] Lomborg, *Skeptical Environmentalist*, 292, citing David J. Rogers and Sarah E. Randolph, "The Global Spread of Malaria in a Future, Warmer World," *Science* 289(5485):1763-6. See also S. I. Hay, *et al.*, "Climate change and the resurgence of malaria in the East African highlands," *Nature* 415:905-09, which concluded that there was no correlation between malaria transmission and temperature variation.

[21] "NOAA attributes recent increase in hurricane activity to naturally occurring multi-decadal climate variability," *NOAA Magazine Online*, Story 184, at http://www.magazine.noaa.gov/stories/mag184.htm.

expected future damages to society of its projected changes in the behavior of hurricanes are dwarfed by the influence of its own projections of growing wealth and population (Pielke et al. 2000).[22]

We have been in a cyclical lull in Atlantic hurricane activity for several decades, during which our coastlines have seen rapid growth in population and infrastructure. It is thus the presence of more property in harm's way, not a historically unprecedented increase in frequency or intensity of hurricanes, that explains rising economic losses from hurricanes. The National Hurricane Center has warned that we were overdue for a return to greater activity, similar to what occurred in the 1930s to the 1950s. Emphasis on a possible human connection distracts from the very real issue that people need to be prepared for increased hurricane activity, whether or not hurricanes' frequency, intensity, or duration are affected by manmade greenhouse gases.

- **"reduction in agricultural output, especially in poor countries":** Observational evidence and computer models yield little confidence in forecasts of the impact of global warming on agricultural production, whether in poor countries or elsewhere.[23] However, rising CO_2–presumably what drives global warming–enhances agricultural yield. For every doubling of atmospheric CO_2 concentration, there is an average 35 percent increase in plant growth efficiency. Plants grow better in warmer and colder temperatures and in drier and wetter conditions, and they are more resistant to diseases and pests. Consequently their ranges and yields increase.[24] Agricultural productivity worldwide and in developing countries has never been higher than it is today.[25] Three likely results of rising CO_2 are shrinking deserts, lower food prices, and reduced demand for agricultural land to feed the world's population, the latter resulting in reduced pressure on

For every doubling of atmospheric CO_2 concentration, there is an average 35 percent increase in plant growth efficiency. . . . Consequently their ranges and yields increase.

[22]R. A. Pielke Jr., *et al.*, "Hurricanes and Global Warming," *Bulletin of the American Meteorological Society*, November 2005, 1571-75, citing IPCC's *Climate Change 2001*; K. Walsh, "Tropical cyclones and climate change: Unresolved issues," *Climate Research* (2004) 27:78-83; T. R. Knutson and R. E. Tuleya, "Impact of CO_2-induced warming on simulated hurricane intensity and precipitation: Sensitivity to the choice of climate model and convective parameterization," *Journal of Climate* (2004) 17:3477-95; A. Henderson-Sellers, *et al.*, "Tropical cyclones and global climate change: A post-IPCC assessment," *Bulletin of the American Meteorological Society* (1998), 79:9-38; R. A. Pielke Jr. and D. Sarewitz, "Turning the big knob: Energy policy as a means to reduce weather impacts," *Energy and Environment* (2000) 11:255-76.

[23]Lauren Sacks and Cynthia Rosenzweig, "Climate Change and Food Security," at http://www.climate.org/topics/agricul/index.shtml.

[24]Many studies have been published demonstrating the benefits of rising CO_2 to agriculture. Much of the work has been done by scientists at the Center for the Study of Carbon Dioxide and Global Change, http://www.co2science.org/scripts/CO2ScienceB2C/Index.jsp, which has links to many articles by both its own scientists and others.

[25]I. M. Goklany, "Potential Consequences of Increasing Atmospheric CO_2 Concentration Compared to Other Environmental Problems," *Technology* 7 Suppl. 1 (2000), 189-213.

habitat and consequently on species survival. These benefits would be reduced or forgone if we reduced atmospheric CO_2.

Claims of dangerous or catastrophic global warming are founded primarily on outlier models that present far more extreme scenarios than the vast majority [and] are based on grossly unrealistic assumptions about future factors that do not reflect current facts or likely future situations.

In sum, to support its claims that human-induced global warming is not only real but also bound to become catastrophic, the ECI either misreads the IPCC's reports or, following the example of the media and politicians, uncritically relies on its Summary for Policy Makers. The Summary, as we noted above, does not reflect the scientific uncertainty contained in the body of the report, was not agreed to by the vast majority of IPCC scientists, and was politically driven. Claims of dangerous or catastrophic global warming are founded primarily on outlier models that present far more extreme scenarios than the vast majority. These outlier models can neither predict even one year into the future nor reconstruct one year into the past. They produce scenarios with no basis in actual evidence. They are based on grossly unrealistic assumptions about future energy use, dominant energy types, pollution levels, economic development, and other factors that do not reflect current facts or likely future situations.[26] Mainstream media generally report on worst-case scenarios and assume that warming will be catastrophic and will bring devastating harm but no benefits. The ECI's statement follows that model.

There is evidence that the current warming period, from the mid-1800s to the present and likely to continue for a century or more, is driven largely by natural causes. Major global and regional climate changes of equal or greater magnitude–the Roman and Medieval Warm Periods, the Little Ice Age, and civilization-killing droughts in the Yucatan and the American southwest, not to mention the ice ages and interglacial periods–are known to have occurred in the complete absence of significant human impact. Yet the ECI, while presenting no evidence that natural causes are *not* the primary driving forces, endorses a response policy that is not only potentially very harmful but also irrational if the current warming is driven largely by natural causes.

What About Scientific Consensus on Human-induced Global Warming?

Before dealing with the effects on the poor, and since what we argue runs counter to a popularly perceived consensus among scientists on global warming, we must also address the ECI's claim, "Since 1995 *there has been general agreement* [emphasis added] among those in the scientific community most seriously engaged with this issue that climate change is happening and is being caused mainly by human activities . . . ." We should like to make three points. First, unlike politics,

[26]IPCC, SRES. See I. M. Goklany, "Is a Richer-but-warmer World Better than Poorer-but-cooler Worlds?" 25th Annual North American Conference of the US Association for Energy Economics/International Association of Energy Economics, September 21-23, 2005.

but like truth, science is not a matter of consensus but of data and valid arguments. Second, as Thomas Kuhn so famously pointed out in *The Structure of Scientific Revolutions*, great advances in science, often involving major paradigm shifts, occur when small minorities patiently–and often in the face of withering opposition–point out anomalies in the data and inadequacies in the reigning explanatory paradigms until their number and weight become so large as to require a wholesale paradigm shift, and what once was a minority view becomes a new majority view. Indeed, skepticism is essential to science: "Most institutions demand unqualified faith; but the institution of science makes skepticism a virtue."[27]

"Most institutions demand unqualified faith; but the institution of science makes skepticism a virtue."–Robert K. Merton

Third, the popular belief that there is such a consensus is dubious at best. Since 1998 over 19,700 scientists have signed a petition saying, "There is no convincing scientific evidence that human release of carbon dioxide, methane, or other greenhouse gasses is causing or will, in the foreseeable future, cause catastrophic heating of the Earth's atmosphere and disruption of the Earth's climate. Moreover, there is substantial scientific evidence that increases in atmospheric carbon dioxide produce many beneficial effects upon the natural plant and animal environments of the Earth." The signers include "2,660 physicists, geophysicists, climatologists, meteorologists, oceanographers, and environmental scientists who are especially well qualified to evaluate the effects of carbon dioxide on the Earth's atmosphere and climate" and "5,017 scientists whose fields of specialization in chemistry, biochemistry, biology, and other life sciences make them especially well qualified to evaluate the effects of carbon dioxide on the Earth's plant and animal life."[28]

In 2004 *Science* published the results of a study by Naomi Oreskes claiming that "without substantial disagreement, scientists find human activities are heating the earth's surface."[29] But an attempt at replicating the study both found that she had made serious mistakes in handling data and, after re-examining the data, reached contrary conclusions. Oreskes claimed that an analysis of 928 abstracts in the ISI database containing the phrase "climate change" proved the alleged consensus. It turned out that she had searched the database using three keywords ("global climate change") instead of the two ("climate change") she reported–reducing the search results by an order of magnitude. Searching just on "climate change" instead found almost 12,000 articles in the same

[27]Robert K. Merton, "Science and the Social Order," *Philosophy of Science* 5:3 (July 1938), 321-337, at 334.

[28]See the Oregon Petition Project at http://www.oism.org/pproject/s33p37.htm. Dr. Art Robinson, an evangelical who managed the project and keeps the signature list up to date, reports that additional scientists continue to sign the petition regularly, and almost none have removed their signatures in the nine years the petition has been in existence. For a complete list of signers, separate lists of those with specialized qualifications, and refutation of attempts to discredit the Petition, see http://www.oism.org/pproject/s33p357.htm. Similarly, since 1995 over 1,500 topic-qualified scientists have signed the Leipzig Declaration opposing the Kyoto Protocol (http://www.sepp.org/leipzig.html). Forty-seven topic-qualified scientists who reject the hypothesis of catastrophic human-induced global warming are listed at http://www.environtruth.org/myth_experts.cfm, complete with contact information and notes on their subjects of expertise.

[29]Naomi Oreskes, "The scientific consensus on climate change," *Science*, vol. 306, issue 5702 (December 3, 2004), 1686, at http://www.sciencemag.org/cgi/content/full/306/5702/1686.

database in the relevant decade. Excluded from Oreskes's list were "countless research papers that show that global temperatures were similar or even higher during the Holocene Climate Optimum and the Medieval Warm Period when atmospheric CO_2 levels were much lower than today; that solar variability is a key driver of recent climate change; and that climate modeling is highly uncertain." Further, even using the three key words she actually used, "global climate change," brought up 1,247 documents, of which 1,117 included abstracts. An analysis of those abstracts showed that

- only 1 percent explicitly endorsed what Oreskes called the "consensus view";
- 29 percent implicitly accepted it "but mainly focus[ed] on impact assessments of envisaged global climate change";
- 8 percent focused on "mitigation";
- 6 percent focused on methodological questions;
- 8 percent dealt "exclusively with paleo-climatological research unrelated to recent climate change";
- 3 percent "reject[ed] or doubt[ed] the view that human activities are the main drivers of the 'the [sic] observed warming over the last 50 years'";
- 4 percent focused "on natural factors of global climate change"; and
- 42 percent did "not include any direct or indirect link or reference to human activities, CO_2 or greenhouse gas emissions, let alone anthropogenic forcing of recent climate change."[30]

[30]Benny J. Peiser, Letter to *Science*, January 4, 2005, submission ID: 56001. *Science* Associate Letters Editor Etta Kavanagh eventually decided against publishing the letter, or the shortened version of it provided at her request by Peiser, not because it was flawed but because "the basic points of your letter have already been widely dispersed over the internet" (e-mail from Etta Kavanagh to Benny Peiser, April 13, 2005). Peiser, a scientist at Liverpool John Moores University, replied: "As far as I am aware, neither the details nor the results of my analysis have been cited anywhere. In any case, don't you feel that SCIENCE has an obligation to your readers to correct manifest errors? After all, these errors continue to be employed by activists, journalists and science organizations . . . . Are you not aware that most observers know only too well that there is absolutely *no* consensus within the scientific community about global warming science?" He went on to cite a survey of "some 500 climatologists [that] found that 'a quarter of respondents still question whether human activity is responsible for the most recent climatic changes," and other evidence. Peiser, e-mail to Kavanagh, April 14, 2005. The whole correspondence, including much more evidence of the lack of scientific consensus on anthropogenic global warming, is online at www.staff.livjm.ac.uk/spsbpeis/Scienceletter.htm.

On April 6, 2006, sixty well-qualified scientists working in the field of climate change sent an open letter to Canadian Prime Minister Stephen Harper, saying, "Observational evidence does not support today's computer climate models, so there is little reason to trust model predictions of the future." The scientists went on to reject the vision of catastrophic human-induced global warming and oppose the Kyoto Protocol.[31] Shortly afterward a group of leading New Zealand climatologists and meteorologists skeptical of catastrophic human-induced global warming formed The New Zealand Climate Science Coalition.[32] And on April 20, 2006, the British Broadcasting Corporation aired a radio program, "Overselling Climate Change," in which many scientists, including those who believe global warming is a serious problem, decried exaggerated claims about it that undermine confidence in science.[33] As Lindzen testified,

"Observational evidence does not support today's computer climate models, so there is little reason to trust model predictions of the future."–Sixty climate-change scientists in an open letter to Canadian Prime Minister Stephen Harper

> Indeed, the whole issue of consensus and skeptics is a bit of a red herring. If, as the news media regularly report, global warming is the increase in temperature caused by man's emissions of CO_2 that will give rise to rising sea levels, floods, droughts, weather extremes of all sorts, plagues, species elimination, and so on, then it is safe to say that global warming consists in so many aspects, that widespread agreement on all of them would be suspect *ab initio*. If it truly existed, it would be evidence of a thoroughly debased field. In truth, neither the full text of the IPCC documents nor even the summaries claim any such agreement. Those who insist that the science is settled should be required to state exactly what science they feel is settled.[34]

". . . the whole issue of consensus and skeptics is a bit of a red herring. . . . neither the full text of the IPCC documents nor even the summaries claim any such agreement.."–Richard S. Lindzen

The idea of scientific consensus on anthropogenic global warming is an illusion.[35]

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[31] http://www.canada.com/components/print.aspx?id=3711460e-bd5a-475d-a6be-4db87559d605.

[32] http://www.climatescience.org.nz/Index.php. For a news report on it, see http://www.nzherald.co.nz/section/story.cfm?c_id=1&ObjectID=10379768.

[33] "Overselling Climate Change," audio online at http://www.bbc.co.uk/radio4/thebattleforinfluence/pip/abkim/.

[34] "Testimony of Richard S. Lindzen before the Senate Environment and Public Works Committee on 2 May 2001," online at http://epw.senate.gov/107th/lin_0502.htm.

[35] It is ironic that many supporters of the ECI rely heavily on the claim of scientific consensus to buttress their view of global warming. The role of the IPCC in climate studies is similar to that of the Jesus Seminar in New Testament scholarship in the 1990s and Darwinism for the past century. It is a self-selecting group with a narrow point of view favored by the political left and mainstream media, and it tends to respond to critics with derision or dismissal rather than collegial engagement. Evangelicals have been quick to criticize the process behind the Jesus Seminar and Darwinism. They have resisted the idea that complex scholarly issues could be decided by a majority vote among club members. Those same critical instincts need to be kept in place when evaluating claims of consensus on global warming.

Global Warming and Concern for the Poor

The second part of Claim 2 is that "**The consequences of climate change will . . . hit the poor the hardest.**" On the contrary, the destructive impact on the poor of enormous mandatory reductions in fossil fuel use far exceeds the impact on them–negative or positive–of the moderate global warming that is most likely to occur. Indeed, the policy promoted by the ECI would be both economically devastating to the world's poor and ineffective at reducing global warming.

> Full compliance with the Kyoto Protocol's carbon emissions reductions would reduce global warming by less than 0.2° F by 2050–an amount so tiny as to disappear in annual fluctuation and with no significant impact on consequences.

Because energy is an essential component in almost all economic production, reducing its use and driving up its costs will slow economic development, reduce overall productivity, and increase costs of all goods, including the food, clothing, shelter, and other goods most essential to the poor. The ECI does not detail steps to reduce CO_2 emissions, instead offering only broad outlines. That reduces its vulnerability to direct criticism. But its broad outlines generally fit with the Kyoto Protocol, so until the ECI offers its own detailed set of proposals, it is helpful to point out the weaknesses in Kyoto. Compliance with the Protocol, without a global carbon emissions trading mechanism, could cost the global economy about $1 trillion per year[36] (i.e., about 2.25 percent of the world's annual production). Over the fifty years from 2001 to 2050, that means $50 trillion. Yet full compliance would reduce global warming by less than 0.2° F by 2050[37]–an amount so tiny as to disappear in annual fluctuation and with no significant impact on consequences. As a result, its supporters also say Kyoto is just a first step–that we shall need many, perhaps forty, more such treaties,[38] each more costly than the last, to prevent catastrophic global warming. It is

[36]Bjørn Lomborg, "Should we implement the Kyoto Protocol? No–We risk burdening the global community with a cost much higher than that of global warming," at www.spiked-online.com/articles/00000002D2C3.htm. More specifically, with no emissions trading, the combined annual cost of compliance in the year 2010 to the United States, the European Union, Japan, Canada, Australia, and New Zealand alone would be around $350 billion; with emissions trading within two blocks of that group, about $240 billion; with unrestricted trading within all Annex I countries, slightly over $150 billion; and with global trading, about $75 billion. Lomborg, *Skeptical Environmentalist*, 303, Figure 158, citing John P. Weyant and Jennifer N. Hill, "Introduction and overview," *The Energy Journal*, Kyoto Special Issue [1999], vii-xliv, at xxxiii-xxxiv, and Bureau of Economic Analysis, *Price Indexes for Gross Domestic Product and Gross Domestic Purchases* (www.bea.doc.gov/bea/dn/st3.csv) and *Selected NIPA Tables showing advance estimates for the fourth quarter of 2000* (www.bea.doc.gov/bea/dn/dpga.txt), both 2001.

[37]Calculations of the range of temperature reduction from compliance with Kyoto differ but are all very low. E.g.: (1) "the Kyoto Protocol . . ., if adhered to by every signatory (including the United States)[,] would only reduce surface temperature by 0.07° C (.13° F) in fifty years" (Michaels, *Meltdown*, 19). (2) "Global mean reductions [in warming by 2100] for the three scenarios are small, 0.08-0.28°C" [i.e., 0.14-0.5° F] (T. M. L. Wigley, "The Kyoto Protocol: CO2, CH4 and Climate Implications," *Geophysical Research Letters*, vol. 25 [July 1998], 2285-88, at 2287).

[38]Wigley writes: "For B=CONST, the expected global-mean warming to 2100 is reduced by [Kyoto compliance by] 0.10-0.21°C depending on the climate sensitivity (close to 7% in all cases). For NOMORE, the reduction in warming is 4%, while for the B= -1% case it is approximately 14%. The rate of slow-down in temperature rise is small, with no sign of any approach to climate stabilization. *The Protocol, therefore, . . . can be considered only as a first and relatively small step towards stabilizing the climate*" (Wigley, "The Kyoto Protocol," 2287-88, emphasis added). National Center

impossible to calculate with any confidence the actual amount that would cost the world economy, but since initial emissions cuts would be cheapest, and every deeper level of cuts afterward would be more costly, it would stand to reason that compliance with forty levels of Kyoto-type agreements would reduce global economic production not by $1 trillion but by over $40 trillion per year–i.e., about 91 percent of its present total. As Lindzen put it:

> Should a catastrophic scenario prove correct, Kyoto will not prevent it. If we view Kyoto as an insurance policy, it is a policy where the premium appears to exceed the potential damages, and where the coverage extends to only a small fraction of the potential damages. Does anyone really want this? I suspect not.[39]

The ECI supports a proposal the requirements of which would be far lighter than those of the Kyoto Treaty and consequently would have no significant climatic effect, regardless of cost.

The one specific policy the ECI does name to reduce CO_2 emissions is cap-and-trade: adopting through international treaty maximum limits on global emissions, issuing permits to individual nations, and the nations auctioning those permits to bidders. Specifically, and in contradiction to its explicit concern to reduce global warming and its alleged perils, the ECI supports a proposal by Senators Pete Domenici and Jeff Bingaman the requirements of which would be far lighter than those of the Kyoto Treaty and consequently would have no significant climatic effect, regardless of cost. In principle a tradable permits scheme is a sensible way to deal with pollution and can be less costly than a command-and-control regulatory approach. However, advocating efficient means of achieving pointless goals does not avoid the problem that the goal itself is poorly conceived. Its efficiency depends largely on there being a variety of ways to address the pollution problem at a variety of costs. In the climate change arena, the lowest cost solutions have largely been either abandonment of means of production that are high CO_2 emitters or using "sinks"–planting more forests to absorb CO_2. While the cap-and-trade system for sulfur dioxide emissions ushered in by the Clean Air Act amendments of 1990 is often cited, it operates on a much smaller scale than that envisioned for controlling national and global CO_2 emissions. Sulfur dioxide was controllable with relatively simple and inexpensive end-of-pipe treatments, such as smokestack scrubbers. No such options are available for CO_2 emissions. Imposing an absolute cap on national or global CO_2 emissions in the absence of any low-cost abatement options would create substantial risks of job losses and economic disruption, whether or not permits are tradable.

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for Atmospheric Research scientist Jerry Mahlman says elimination of human-induced warming would require "forty successful Kyotos" (Tim Appenzeller and Dennis Dimick, "The Heat Is On," *National Geographic*, September 2004, 11). David Malakoff cites other climate scientists as saying thirty (David Malakoff, "Thirty Kyotos Needed to Control Warming," *Science*, December 19, 1997, 2048).

[39]"Testimony of Richard S. Lindzen before the Senate Environment and Public Works Committee on 2 May 2001," online at http://epw.senate.gov/107th/lin_0502.htm.

Moreover, we still must determine how harmful CO_2 emissions are and, thus, the benefits of reducing them. But, as we have seen, many scientists, especially agriculturalists, believe that CO_2 should not be classed as a pollutant at all because of its benefits to plant growth. Even assuming that CO_2 is a pollutant, it is simply impossible at the present state of the science to estimate with any reasonable degree of confidence how much harm–and benefit–is done by each ton emitted, and the balance between the two. Further, most of the proposals for cap-and-trade now on the table would exempt most developing countries from the cap. Because large, rapidly developing countries like India and China are among the exempt, and firms in regulated countries could move operations to unregulated countries to avoid abatement or permit costs, the result would be to leave actual global emissions largely unaffected.

Many scientists, especially agriculturalists, believe that CO_2 should not be classed as a pollutant at all because of its benefits to plant growth.

Church leaders, evangelicals in particular, are concerned about climate change primarily because they fear its potential impacts on the world's poor, especially in the tropics. However, forecasts of things like precipitation and temperature change over long time horizons in particular regions are simply not possible. If the aim is to help the poor, what matters from the policy point of view is supporting the development process by which countries acquire greater ability to deal with adverse economic, climatic, and social conditions, regardless of cause. Put simply, poor countries need income growth, trade liberalization, and secure supplies of reliable, low-cost electricity. Rather than focusing on theoretically possible changes in climate, which varies tremendously anyway with El Niño, La Niña, and other natural cycles, we should emphasize policies–such as affordable and abundant energy–that will help the poor prosper, thus making them less susceptible to the vagaries of weather and other threats in the first place.

If the aim is to help the poor, what matters from the policy point of view is supporting the development process by which countries acquire greater ability to deal with adverse economic, climatic, and social conditions, regardless of cause.

ECI's Third and Fourth Assumptions: Reducing CO_2 Emissions

The ECI's **third** and **fourth assumptions** appear under "Claim 3: Christian Moral Convictions Demand Our Response to the Climate Change Problem" and "Claim 4. The need to act now is urgent. Governments, businesses, churches, and individuals all have a role to play in addressing climate change–starting now." The assumptions are that reducing carbon dioxide emissions would so curtail global warming as to significantly reduce its anticipated harmful effects (which we have just seen is false), and that government-mandated carbon dioxide emissions reductions would achieve that end with overall effects that would be more beneficial than harmful to humanity and the rest of the world's inhabitants.

With the general assertions that Christians must care about climate change because we love God and are called to love our neighbors and that God has given us stewardship over the earth, we agree. But these address motive. They do not specify action. The specific actions demanded by the ECI are "to find ways now to begin to reduce the carbon dioxide emissions from the burning of fossil fuels that are the primary cause of human-induced climate change"[40] and to "help the poor adapt to the significant harm that global warming will cause." But as we have already seen, the harms caused by mandatory CO_2 emissions reductions will almost certainly outweigh the benefits, especially to the poor, for whom the marginal increases in prices will be a much greater burden than for the rich.

The harms caused by mandatory CO_2 emissions will almost certainly outweigh the benefits, especially to the poor.

The world's poor are much better served by enhancing their wealth through economic development than by whatever minute reductions might be achieved in future global warming by reducing CO_2 emissions.[41] It is difficult to imagine how it could possibly be that, as the ECI claims, "*The basic task for all of the world's inhabitants* [emphasis added] is to find ways now to begin to reduce the carbon dioxide emissions from the burning of fossil fuels that are the primary cause of human-induced climate change." Millions of poor people in developing countries die every year because they lack clean water and indoor plumbing, electricity (forcing them to burn wood and dung for cooking and heating and to live without refrigeration and air conditioning), sewage treatment, jobs, access to affordable medical care, and adequate nutrition–not to mention just and orderly legal and economic systems. Not only will the policies proposed by the ECI not solve any of these real, present, and vast problems, but instead they will slow down and in

Not only will the policies proposed by the ECI not solve any of the real, present, and vast problems that cost millions of deaths among the poor every year, but instead they will slow down and in some cases prevent their being solved.

[40]This question-begging language deserves notice. Suppose (only to illustrate the point, not as if it were true) that one-tenth of 1 percent of global warming were human-induced, and that 60 percent of that were induced by burning fossil fuels. In that case 0.06 percent of global warming would be attributable to burning fossil fuels. If anticipated global warming from a doubling of atmospheric CO_2 were 3° C (likely on the high side), that would mean that only 0.0018° C of global warming from doubled CO_2 could be blamed on burning fossil fuels. Yet it would still be true that only by reducing fossil fuel use could we "reduce the carbon dioxide emissions from the burning of fossil fuels that are the primary cause of *human-induced* climate change."

[41]See, as examples of studies supporting such conclusions, the following papers by environmental policy analyst Indur M. Goklany: "Comments to the Stern Review on the Economics of Climate Change," March 17, 2006, at http://members.cox.net/goklany/Stern%202.pdf; "Evidence for the Stern Review on the Economics of Climate Change," December 9, 2005, http://members.cox.net/goklany/Goklany-%20Evidence%20for%20Stern%20Review.pdf; "Integrated Strategies to Reduce Vulnerability and Advance Adaptation, Mitigation, and Sustainable Development," http://members.cox.net/igoklany/Goklany-Integrating_A&M_preprint.pdf; "A Climate Policy for the Short and Medium Term: Stabilization or Adaptation?", *Energy & Environment* 16:3&4 (2005), http://members.cox.net/igoklany/EEv16_Stab_or_Adaptation.pdf; "Evidence to the House of Lords Select Committee on Economic Affairs on Aspects of the Economics of Climate Change," *Energy & Environment* 16:3&4 (2005), http://members.cox.net/igoklany/EEv16-3+4_GoklanyHoL_Evidence.pdf.

some cases prevent their being solved–all for the sake of responding to speculative and likely exaggerated risks far in the future, through measures that would be ineffective anyway.

The ECI's claim that "deadly impacts are being experienced now" is unsubstantiated. To substantiate it, the ECI would have to prove not just that global average temperatures are rising or that severe weather events are more frequent or more extreme, etc., but that (a) these things are significantly driven by CO_2 emissions from fossil fuel consumption and (b) the numbers of deaths attributable to them match or exceed the numbers attributable to the known, well-understood causes listed above. No data anywhere suggest anything remotely like that. In fact, virtually everywhere death rates have declined over the last several decades, even as the globe has admittedly warmed–although they are rising in some areas that are sinking deeper into poverty or where malaria is resurgent and AIDS has become prevalent.[42]

Worse, by emphasizing these improbable risks and solutions, and by condemning the world's poor to slower economic development by raising energy prices, the ECI asks the poor to give up or at least postpone their claims to modern technology that is essential for a better future for themselves and their children. It tells them they must not expect to have fossil fuels, electricity, or even eco-tourism (because jets emit greenhouse gases and cause climate change). Other environmental activists tell them they must not use hydroelectric or nuclear power to generate electricity, because of fears of damming rivers and risks from handling nuclear wastes. So the world's poor must remain indigenous, traditional, and poor–or as Leon Louw has put it, must continue living in "human game preserves," so that affluent Westerners can visit them in their quaint villages.[43]

It is immoral and harmful to Earth's poorest citizens to deny them the benefits of abundant, reliable, affordable electricity and other forms of energy merely because it is produced by fossil fuels.

It is immoral and harmful to Earth's poorest citizens to deny them the benefits of abundant, reliable, affordable electricity and other forms of energy (for homes, cars, airplanes, and factories) merely because it is produced by using fossil fuels. Foreseeable forms of renewable energy (other than hydroelectric) won't provide *reliable, affordable* electricity at least for many years, in amounts that are adequate and necessary for modern hospitals, factories, homes, communities and nations. To tell poor families, communities, and nations that they can't develop hydroelectric or nuclear energy either, because some people disapprove of them, is unconscionable.

As discussed previously, the ECI advises, "In the United States, the most important immediate step that can be taken at the federal level is to pass and implement national legislation requiring sufficient

[42] I. M. Goklany, "The Globalization of Human Well-being," *Policy Analysis* 447 (Washington: Cato Institute, August 22, 2002).

[43] For thorough discussion of the destructive impact of much environmental policy originating in the West on the poor in the developing world, see Paul Driessen, *Eco-Imperialism: Green Power Black Death* (Bellevue, WA: Free Enterprise Press, 2003).

economy-wide reductions in carbon dioxide emissions through cost-effective, market-based mechanisms such as a cap-and-trade program." The term *sufficient* here is misleading: no one claims the kinds of cap-and-trade systems under discussion would be sufficient to mitigate global warming. And the statement itself is a contradiction in terms. Compulsory programs are not market-driven; they are driven by regulations, treaties, and rent seeking.[44] But such programs appeal to politicians, who want to hide the tax and blame others for the soaring prices.

We agree that it is wise to pursue increasing energy efficiency through the development of new technologies. But a program that can only be done by government mandate is by definition not a program that the market deems cost effective. We believe the market is a better judge of cost effectiveness than bureaucrats and politicians. What are needed are *prudent* policies that reflect actual risks, costs, and benefits; an honest evaluation of sound scientific, economic, and technological data; and unbiased application of moral, ethical, and theological principles.

Perhaps the most ironic element of the ECI's "Call to Action" appears in its statement that "as a society and as individuals we must also help the poor adapt to the significant harm that global warming will cause." It is ironic not only because it assumes what might very well be false (that the overall impact of global warming on the poor will be more harmful than beneficial) but, much more importantly, because the cure it prescribes will rob the poor of the very thing they most need if they are to be able to adapt, not just to catastrophic global warming but to *any* future catastrophe: wealth.[45] We know we have said this before, but it bears repeating: since energy is an essential component in all economic production, artificially restricting its consumption will drive down production, drive up prices, and reduce access to life-improving and life-saving technologies, harming the poor especially.

A Better Vision, a Better Call to Action

In light of all the above, we conclude that the best scientific and economic evidence points to these five conclusions:

- Foreseeable global warming will have moderate and mixed (not only harmful but also helpful), not catastrophic, consequences for humanity–including the poor–and the rest of the world's inhabitants.

- Natural causes may account for a large part, perhaps the majority, of the global warming in both the last thirty and the last one hundred fifty years, which together constitute an episode in the natural rising and falling cycles of global average temperature. Human emissions of carbon dioxide and other greenhouse gases are probably a minor and possibly an insignificant

[44]Rent seeking is the process of seeking profit not by producing goods and services for consumers but by manipulating the economic circumstances through government mandates.

[45]I. M. Goklany, "Integrated Strategies to Reduce Vulnerability and Advance Adaptation, Mitigation, and Sustainable Development," forthcoming in *Mitigation and Adaptation Strategies for Global Change* (2006).

contributor to its causes.

- Reducing carbon dioxide emissions would have at most an insignificant impact on the quantity and duration of global warming and would not significantly reduce alleged harmful effects.

- Government-mandated carbon dioxide emissions reductions not only would not significantly curtail global warming or reduce its harmful effects but also would cause greater harm than good to humanity–especially the poor–while offering virtually no benefit to the rest of the world's inhabitants.

- In light of all the above, the most prudent response is not to try (almost certainly unsuccessfully and at enormous cost) to prevent or reduce whatever slight warming might really occur. It is instead to prepare to adapt by fostering means that will effectively protect humanity–especially the poor–not only from whatever harms might be anticipated from global warming but also from harms that might be fostered by other types of catastrophes, natural or manmade.

We believe the first four of these points are adequately supported by the previous discussion. Hence we turn to the fifth: the need for economic development to protect against environmental problems of all kinds.

National Center for Atmospheric Research scientist Jerry Mahlman has said even full compliance with Kyoto would have no measurable effect on CO_2 levels or climate–and to stabilize the Earth's climate would take "forty successful Kyotos,"[46] each more restrictive than its predecessors. This assessment and similar ones are behind demands by some that poor countries (especially the large, dynamic ones), which were exempted from the Kyoto Protocol, must also agree to it and curb their appetites for energy. However, Brazil, China, India, and other developing countries have a duty, as governments responsible for the well-being of their people, to promote and facilitate energy and economic development, and greater prosperity and hope, for their people. Poor countries have every right to develop their economies, ultimately creating greater environmental awareness and reaching an improved economic and technological ability to achieve greater energy efficiency, pollution control, and environmental improvement. Similarly, developed nations have a duty to refrain from imposing restrictions that would make it harder for them to do so. Only in this way can both human and ecological goals be met.

Many environmentalists argue that developed and developing nations alike must stop using fossil fuels. They thus oppose coal and natural gas-fired electrical generating plants. But because they also oppose hydroelectric and nuclear facilities, they leave developing countries no alternatives to more expensive, presently less efficient energy technologies like solar and wind (technologies that do not represent the required base load or dependable power source needed by societies for energy security).[47] The very fact that such higher-cost technologies are not widely used in rich countries

[46]Appenzeller and Dimick, "The Heat Is On," *National Geographic*, September 2004, 11.

[47]"Renewable sources of energy–hydroelectric, solar, wind, geothermal and biomass–have high capital investment

testifies that they cannot be widely used in poor ones. Fossil fuels, then, should be seen as a proper stage in energy development, far safer than burning wood and dung (smoke from which claims 1.6 million lives per year),[48] and a means of enabling the economic growth that eventually can make even cleaner technologies affordable.

Stopping or reversing economic development in the world's poor countries–which drastic restrictions on fossil fuel use would cause–would keep poor nations impoverished. It would perpetuate what South Africa's Leon Louw calls "human game preserves" where Western tourists can see "cute indigenous people at one with their environment and the wildlife." But what climate activist–indeed, what signer of "Climate Change: An Evangelical Call to Action"–would willingly, for even a month, live in a mud hut in malaria-infested rural Africa under the indigenous conditions their policy prescription would perpetuate? Who among them would be glad to drink the locals' contaminated water, eat their paltry, mold-infested food, breathe the smoke from their wood and dung fires, live twenty-four hours a day, seven days a week, three hundred sixty-five days a year without lights, air conditioning, and refrigeration? Who among them would work all day in the fields amid swarms of diseased mosquitoes and tsetse flies–and swelter under bed nets, trying to sleep when the temperature in the hut is 90° F and inside the bed net 100°–all without bug spray, pesticides, and anti-malaria pills? Who among them would be prepared to walk twenty miles to the nearest clinic, carrying their sick or dying child with them, when they inevitably come down with the fever, chills, and convulsions of acute malaria?

Stopping or reversing economic development in the world's poor countries–which drastic restrictions on fossil fuel use would cause–would keep poor nations impoverished.

That way of life–or rather, death–is the real, though unintended, impact of the policies promoted by "Climate Change: An Evangelical Call to Action."

A thought experiment might help make our point clearer. Imagine that your city were struck by a

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requirements and significant, if usually unacknowledged, environmental consequences. For most renewables, the energy they collect is extremely dilute, requiring large areas of land and masses of collectors to concentrate. Manufacturing solar collectors, pouring concrete for fields of windmills, drowning square miles of land behind dams damages and pollutes." E.g., a 1,000-megawatt wind farm (about the capacity of a medium-sized conventional power plant) would occupy 2,000 square miles "and even with substantial subsidies and uncharged pollution externalities would produce electricity at double or triple the cost of fossil fuels." At that ratio, wind farms sufficient to generate the 604,000 megawatts the United States consumes would occupy a third of the country's total land area. Richard Rhodes and Denis Beller, "The Need for Nuclear Power," *Foreign Affairs* 79:1 (January/February 2000), 30-44; citing here from annotated version at http://www.nci.org/conf/rhodes/index.htm.

[48]The Intermediate Technology Development Group, citing United Nations and International Energy Agency data. Smoke from wood and dung fires thus kills more people than malaria and almost as many as unsafe drinking water and lack of sanitation. Most of its victims are women and children. Alex Kirby, "Indoor smoke 'kills millions'," BBC News, November 28, 2003, online at http://news.bbc.co.uk/go/pr/fr/-/2/hi/science/nature/3244214.stm.

heat wave like the one that killed 700 in Chicago in 1995. Would you be more likely to survive comfortably and safely if you were wealthy, or if you were poor? If the answer is as obvious as we believe it is, what moral basis can there be for adopting an anti-global warming policy that reduces economic development for the world's poor and thus prolongs the time during which they cannot afford to protect themselves from heat–or any other risk?

Responsible discussion of a proposed policy to deal with any problem requires comparing its costs and benefits with those of alternative policies to deal not just with the same problem but also with other problems. Every prescription is likely to have both positive and negative consequences–for different aspects of the environment, different species, different regions, and different groups of people. Therefore we commend the approach used by the Copenhagen Consensus, and we hope our evangelical brothers and sisters, and all who are concerned not just about global warming but about other threats to human and planetary well being, will study it carefully.[49]

We should reduce any emissions only in a cost-effective manner. The difficulty lies in defining what is cost-effective, which entails consideration of monetary cost, available technology, opportunity cost (other uses for that money for health, education, environmental protection, etc), the likelihood and magnitude of risks to be averted, the likelihood and magnitude of benefits to be achieved, who is most likely to enjoy the benefits, who is most likely to bear the costs, and who gets to make the decisions. We believe mandatory carbon emissions reductions are not cost-effective. Therefore we believe that, while we should continue studying the issue, there is no need for draconian measures that will keep the poorest people on Earth from enjoying the benefits of abundant energy. Our technological advancements over the next fifty years will likely dwarf those of the twentieth century and yield new energy generation and use technologies that we cannot even imagine today. All will help reduce human impacts on the climate. More important for the life, health, and well being of the world's poor and their posterity, however, we should continue to promote policies that encourage economic growth where they are.

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[49]Bjørn Lomborg, *Global Crises, Global Solutions* (Cambridge: Cambridge University Press, 2004); http://www.copenhagenconsensus.com/Default.aspx?ID=675. In the process, studies by specialists and respondents were submitted to eight expert economists, including three Nobel Laureates, who then prioritized major problems facing mankind and alternative solutions to them and then ranked them from most to least effective. The alternatives were divided into four categories of cost-effectiveness–Very Good, Good, Fair, and Bad–and listed in descending order of cost effectiveness (how many people would experience how much benefit at what cost) within each category. The results (*Global Crises, Global Solutions*, 606) were: **Very Good:** 1. Communicable diseases: control of HIV/AIDS. 2. Malnutrition and hunger: providing micronutrients. 3. Subsidies and trade: trade liberalization. 4. Communicable diseases: control of malaria. **Good:** 5. Malnutrition and hunger: development of new agricultural technologies. 6. Sanitation and water: community-managed water supply and sanitation. 7. Sanitation and water: small-scale water technology for livelihoods. 8. Sanitation and water: research on water productivity in food production. 9. Governance and corruption: lowering the cost of starting a new business. **Fair:** 10. Migration: lowering barriers to migration for skilled workers. 11. Malnutrition and hunger: improving infant and child nutrition. 12. Communicable diseases: scaled-up basic health services. 13. Malnutrition and hunger: reducing the prevalence of low birth weight. **Bad:** 14. Migration: guest worker programs for the unskilled. 15. Climate change: optimal carbon tax. 16. Climate change: Kyoto Protocol. 17. Climate change: value-at-risk carbon tax. **Of the seventeen options, the three worst all had to do with attempting to reduce global warming.**

Sixteen years ago, the *Oxford Declaration on Christian Faith and Economics* made this crucial point:

> We deplore economic systems based on policies, laws, and regulations whose effect is to favour privileged minorities and to exclude the poor from fully legitimate activities. Such systems are not only inefficient, but are immoral as well in that participating in and benefitting from the formal economy depends on conferred privilege of those who have access and influence to public and private institutions rather than on inventiveness and hard work. Actions need to be taken by public and private institutions to reduce and simplify the requirements and costs of participating in the national economy.[50]

Today we stand with the Oxford Declaration in deploring policies, laws, and regulations whose effect is to favor the already wealthy at the expense of the still poor, excluding them from legitimate development of and legitimate participation in advanced economies and all the benefits they deliver such as lower infant and child mortality rates, longer life expectancy, lower disease rates, more and better education, transportation, communication, and all the other things the already wealthy take for granted. Therefore we pledge to oppose quixotic attempts to reduce global warming. Instead, constrained by the love of Jesus Christ for the least of these (Matthew 25:45), and by the evidence presented above, we vow to teach and act on the truths communicated here for the benefit of all our neighbors.

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[50] *Oxford Declaration on Christian Faith and Economics* (1990), 47; published online at http://www.casi.org.nz/statements/decoxcfe.htm.

Appendix

Signers of the Open Letter to Canadian Prime Minister Stephen Harper

http://www.canada.com/nationalpost/financialpost/story.html?id=3711460e-bd5a-475d-a6be-4db87559d605

Dr. Ian D. Clark, professor, isotope hydrogeology and paleoclimatology, Dept. of Earth Sciences, University of Ottawa; **Dr. Tad Murty**, former senior research scientist, Dept. of Fisheries and Oceans, former director of Australia's National Tidal Facility and professor of earth sciences, Flinders University, Adelaide, currently adjunct professor, Departments of Civil Engineering and Earth Sciences, University of Ottawa; **Dr. R. Timothy Patterson**, professor, Dept. of Earth Sciences (paleoclimatology), Carleton University, Ottawa; **Dr. Fred Michel**, director, Institute of Environmental Science and associate professor, Dept. of Earth Sciences, Carleton University, Ottawa; **Dr. Madhav Khandekar**, former research scientist, Environment Canada, member of editorial board of Climate Research and Natural Hazards; **Dr. Paul Copper**, FRSC, professor emeritus, Dept. of Earth Sciences, Laurentian University, Sudbury, Ont.; **Dr. Ross McKitrick**, associate professor, Dept. of Economics, University of Guelph, Ont.; **Dr. Tim Ball**, former professor of climatology, University of Winnipeg; environmental consultant; **Dr. Andreas Prokoph**, adjunct professor of earth sciences, University of Ottawa, consultant in statistics and geology; **Mr. David Nowell**, M.Sc. (Meteorology), fellow of the Royal Meteorological Society, Canadian member and past chairman of the NATO Meteorological Group, Ottawa; **Dr. Christopher Essex**, professor of applied mathematics and associate director of the Program in Theoretical Physics, University of Western Ontario, London, Ont.; **Dr. Gordon E. Swaters**, professor of applied mathematics, Dept. of Mathematical Sciences, and member, Geophysical Fluid Dynamics Research Group, University of Alberta; **Dr. L. Graham Smith**, associate professor, Dept. of Geography, University of Western Ontario, London, Ont.; **Dr. G. Cornelis van Kooten**, professor and Canada Research Chair in environmental studies and climate change, Dept. of Economics, University of Victoria; **Dr. Petr Chylek**, adjunct professor, Dept. of Physics and Atmospheric Science, Dalhousie University, Halifax; **Dr./Cdr. M. R. Morgan**, FRMS, climate consultant, former meteorology advisor to the World Meteorological Organization, previously research scientist in climatology at University of Exeter, U.K.; **Dr. Keith D. Hage**, climate consultant and professor emeritus of Meteorology, University of Alberta; **Dr. David E. Wojick**, P.Eng., energy consultant, Star Tannery, Va., and Sioux Lookout, Ont.; **Rob Scagel**, M.Sc., forest microclimate specialist, principal consultant, Pacific Phytometric Consultants, Surrey, B.C.; **Dr. Douglas Leahey**, meteorologist and air-quality consultant, Calgary; Paavo Siitam, M.Sc., agronomist, chemist, Cobourg, Ont.; **Dr. Chris de Freitas**, climate scientist, associate professor, The University of Auckland, N.Z.; **Dr. Richard S. Lindzen**, Alfred P. Sloan professor of meteorology, Dept. of Earth, Atmospheric and Planetary Sciences, Massachusetts Institute of Technology; **Dr. Freeman J. Dyson**, emeritus professor of physics, Institute for Advanced Studies, Princeton, N.J.; **Mr. George Taylor**, Dept. of Meteorology, Oregon State University; Oregon State climatologist; past president, American Association of State Climatologists; **Dr. Ian Plimer**, professor of geology, School of Earth and Environmental Sciences, University of Adelaide; emeritus professor of earth sciences, University of Melbourne, Australia; **Dr. R.M. Carter**, professor, Marine Geophysical Laboratory, James Cook University, Townsville, Australia; **Mr. William Kininmonth**, Australasian Climate Research, former Head National Climate Centre, Australian Bureau of Meteorology, former Australian delegate to World Meteorological Organization Commission for Climatology, Scientific and Technical Review; **Dr. Hendrik Tennekes**, former director of research, Royal Netherlands Meteorological Institute; **Dr.**

Gerrit J. van der Lingen, geologist/paleoclimatologist, Climate Change Consultant, Geoscience Research and Investigations, New Zealand; **Dr. Patrick J. Michaels**, professor of environmental sciences, University of Virginia; **Dr. Nils-Axel Morner**, emeritus professor of paleogeophysics & geodynamics, Stockholm University, Stockholm, Sweden; **Dr. Gary D. Sharp**, Center for Climate/Ocean Resources Study, Salinas, Calif.; **Dr. Roy W. Spencer**, principal research scientist, Earth System Science Center, The University of Alabama, Huntsville; **Dr. Al Pekarek**, associate professor of geology, Earth and Atmospheric Sciences Dept., St. Cloud State University, St. Cloud, Minn.; **Dr. Marcel Leroux**, professor emeritus of climatology, University of Lyon, France, former director of Laboratory of Climatology, Risks and Environment, CNRS; **Dr. Paul Reiter**, professor, Institut Pasteur, Unit of Insects and Infectious Diseases, Paris, France, expert reviewer, IPCC Working group II, chapter 8 (human health); **Dr. Zbigniew Jaworowski**, physicist and chairman, Scientific Council of Central Laboratory for Radiological Protection, Warsaw, Poland; **Dr. Sonja Boehmer-Christiansen**, reader, Dept. of Geography, University of Hull, U.K., editor, *Energy & Environment*; **Dr. Hans H.J. Labohm**, former advisor to the executive board, Clingendael Institute (The Netherlands Institute of International Relations) and an economist who has focused on climate change; **Dr. Lee C. Gerhard**, senior scientist emeritus, University of Kansas, past director and state geologist, Kansas Geological Survey; **Dr. Asmunn Moene**, past head of the Forecasting Centre, Meteorological Institute, Norway; **Dr. August H. Auer**, past professor of atmospheric science, University of Wyoming; previously chief meteorologist, Meteorological Service (MetService) of New Zealand; **Dr. Vincent Gray**, expert reviewer for the IPCC and author of *The Greenhouse Delusion: A Critique of 'Climate Change 2001'*, Wellington, N.Z.; **Dr. Howard Hayden**, emeritus professor of physics, University of Connecticut; **Dr. Benny Peiser**, professor of social anthropology, Faculty of Science, Liverpool John Moores University, U.K.; **Dr. Jack Barrett**, chemist and spectroscopist, formerly with Imperial College London, U.K.; **Dr. William J. R. Alexander**, professor emeritus, Dept. of Civil and Biosystems Engineering, University of Pretoria, South Africa, member, United Nations Scientific and Technical Committee on Natural Disasters, 1994-2000; **Dr. S. Fred Singer**, professor emeritus of environmental sciences, University of Virginia, former director, U.S. Weather Satellite Service; **Dr. Harry N.A. Priem**, emeritus professor of planetary geology and isotope geophysics, Utrecht University, former director of the Netherlands Institute for Isotope Geosciences; past president of the Royal Netherlands Geological & Mining Society; **Dr. Robert H. Essenhigh**, E.G. Bailey professor of energy conversion, Dept. of Mechanical Engineering, The Ohio State University; **Dr. Sallie Baliunas**, astrophysicist and climate researcher, Boston, Mass.; **Douglas Hoyt**, senior scientist at Raytheon (retired) and co-author of *The Role of the Sun in Climate Change*, previously with NCAR, NOAA, and the World Radiation Center, Davos, Switzerland; **Dipl.-Ing. Peter Dietze**, independent energy advisor and scientific climate and carbon modeller, official IPCC reviewer, Bavaria, Germany; **Dr. Boris Winterhalter**, senior marine researcher (retired), Geological Survey of Finland, former professor in marine geology, University of Helsinki, Finland; **Dr. Wibjorn Karlen**, emeritus professor, Dept. of Physical Geography and Quaternary Geology, Stockholm University, Sweden; **Dr. Hugh W. Ellsaesser**, physicist/meteorologist, previously with the Lawrence Livermore National Laboratory, Calif., atmospheric consultant; **Dr. Art Robinson**, founder, Oregon Institute of Science and Medicine, Cave Junction, Ore.; **Dr. Arthur Rorsch**, emeritus professor of molecular genetics, Leiden University, The Netherlands, past board member, Netherlands organization for applied research (TNO) in environmental, food, and public health; **Dr. Alister McFarquhar**, Downing College, Cambridge, U.K., international economist; **Dr. Richard S. Courtney**, climate and atmospheric science consultant, IPCC expert reviewer, U.K.

Appendix E

Andrew R. Lewis,
The Ethics & Religious Liberty Commission

"Policy Statement on Global Warming"

August 2005

The Ethics & Religious Liberty Commission

Policy Statement on Global Warming

By *Andrew R. Lewis*

Aug 1, 2005

The issue of global warming has become a topic of heated debate in the political and Christian communities in recent decades. It is a complex issue that sits at the very heart of the dispute between diverging environmental policies. Various groups are taking different approaches to this issue, and while all the groups agree that a warming trend is occurring, they disagree on its causes. Some conclude that global warming is primarily the result of manmade causes, while others believe that global warming is merely a phase through which our planet is going. The time has come for Christians to engage this issue, and, in order to do so in a responsible manner, they must be informed by a biblical worldview.

An understanding of God's intended relationship between humanity and the natural world is the starting point for a Christian response to the issue of global warming. Genesis 2:15 reveals the biblical model of environmental stewardship by declaring that God put man in the Garden of Eden to "work it and take care of it." This makes clear that God calls Christians to be stewards of the natural environment by both caring for and using what God has graciously given. Also, Jesus gives a clear biblical example of stewardship in His "Parable of the Talents" (Matt. 25:14-28). In this parable, the master praises his servants for their wise use of the resources entrusted to them. However, one servant was unwise in his use, and he was scolded harshly by the master. In this parable, Jesus provides a clear principle of good stewardship: a good steward is one who puts to good use what has been provided to him.

Good stewardship is about more than using resources, though; it also involves caring for those resources. This added dimension of stewardship is based in the goodness of God's creation and the belief that God is the owner and giver of all. The very fact that God created the world gives it great value and demands our care. When He finished His creation, God called it "very good" (Gen. 1:31). David reaffirms God's declaration when he proclaims, "The earth is the Lord's, and everything in it, the world, and all who live in it" (Ps. 24:1). Consequently, while man exercises considerable freedom in his use of creation, he is not free to abuse it, since God is the ultimate owner and ruler. Therefore, the desire to care for creation must be derived from an understanding of the intrinsic value of creation and its relationship to the Creator.

While it is clear that God demands proper stewardship of His creation, many have championed distorted views of this reality. Some have advocated using nature without any reservations, leading to environmental destruction. This is an anthropocentric way to view the world, focusing on what will most benefit man and making man the center of the universe rather than God. The other extreme view puts heavy emphasis on caring for the environment while downplaying or limiting its use for the good of man. This is a pantheistic view of the world, putting nature at the center of the universe rather than God. Neither is a proper biblical view of the environment. God demands that His people both care for and use what He has given. It is this balance between care and use that should drive Christian environmental policies, because any alternate view is distinctly unbiblical and unchristian.

One must use this proper view of environmental stewardship to address the subject of global warming. No one refutes that the planet is currently experiencing a warming trend. Many do, however, dispute its causes. The popular view among many politicians, the news media, and scientists is that global warming is being caused by the release of carbon dioxide (CO2) into the atmosphere by pollution and the burning of fossil fuels. Once in the atmosphere, many scientists have declared, these CO2 gases act as "greenhouse gases," retaining heat inside the earth's atmosphere. They conjecture that this has led and will lead to increased temperatures over a period of time, eventually changing the climate of the earth. If true, this could have disastrous effects on the earth's environment, oceans, wildlife, plant life, and economic system.

Because of these projected results, global warming has become a hot-button topic in environmental politics in the past couple decades, and there is increasing pressure from interest groups and European countries for the United States to take a strong position on this issue. In conjunction with the belief of manmade global warming, the Kyoto Protocol was put forth by the United Nations in 1997 to curb greenhouse gases and attempt to limit global warming throughout the world. The Kyoto Protocol targets the largest producers of carbon emissions in the world, asking them to sign on and agree to reduce greenhouse gases. Many European nations have agreed to this international treaty in recent years, but the United States has not, which consequently has led to constant pressure both nationally and internationally. Multiple national, international, and Christian groups have also made statements and signed documents encouraging the United States to take specific action on global warming. Despite political, religious, and national pressure, the United States, thousands of scientists, think tanks, interest groups, and religious institutions (like the Southern Baptist Convention) have refused to adopt parts or all of the manmade global warming theory and the proposed Kyoto Protocol because of multiple flaws, scientific unknowns, and potential economic problems.

Global warming is a very complicated subject and the Kyoto Protocol has complicated processes that could lead to complex results. However, there are some basic flaws and concerns with both the idea and premise of manmade global warming and the functionality of the Kyoto Protocol. The Kyoto Protocol's policies insist that industrialized nations are the primary factor in the increased carbon emissions in the environment and the ensuing "greenhouse effect" which will increase temperatures and affect climate change. However, there are several factors that do not explicitly point to humans as being the primary factors in the greenhouse effect and the warming of the earth. In the twentieth century alone data show periods of warming and cooling that seem to be unaffected by human pollution. From 1900 to 1940 there was a strong pattern of warming of the earth's surface temperature, and then from 1940 to the late 1970s, after a significant increase in greenhouse gas production from factories and automobiles, a slight cooling trend was seen. And now from the 1970s to the present another warming trend is occurring[1]. This points to a more cyclical pattern of warming and cooling rather than a consistently increasing warming pattern caused exclusively by man, as advocates of the manmade global warming theory would have people believe.

Overall the scientific data is simply not conclusive enough concerning the human effect on climate change to take rash action on limiting carbon emissions. In fact, tens of thousands of scientists agree that there is no conclusive evidence for the manmade global warming theory[2]. Records prove that climates have changed in the past without human interaction, and most of the computer models that predict severe climate change are extrapolated from a very short span of data and use models and analysis that predict an ever-increasing temperature. Also, most models are based on surface temperature, but the real results should be developed

from readings of atmospheric temperature. Scientists have weather balloon data dating back to 1957 and satellite data beginning in 1979, and both point to no significant warming trend. It has also been proven that a variety of physical, non-human factors can affect the extended rising and falling of temperatures. The El Niño effect in the Pacific Ocean (which is a common natural occurrence that warms the ocean temperatures and, in turn, the air) that was present in 1997 and 1998 and caused a natural warming during those years is one such non-human factor.

This El Niño effect led to increased temperatures in the late 1990s, and these temperature increases are often used to point to manmade global warming, without events such as El Niño being mentioned. It is true that man has played a significant role in the increased carbon emissions in the atmosphere. However, natural events such as El Niño create further uncertainties about the extent to which man has contributed to the global warming phenomenon.

Therefore, the most rational action to take would be to not blindly accept inconclusive evidence as pure fact and act irrationally upon it. Yet, the Kyoto Protocol does exactly this. It calls for extensive and expensive cuts in carbon emissions by those countries that produce the most carbon emissions, but since it does not target most of the developing world, the Protocol would have little effect on the global environment while causing enormous financial strain on world economies. According to popular extrapolated models (which have been proven to have biases[3]), global warming is supposed to increase the average temperature about 1 degree Centigrade by 2050, and, if Kyoto is put in place during that same time period, the difference between no action and the actions of Kyoto will be six hundredths of a degree (0.06), which is an environmental non-factor[4]. But, while it would impact the climate change to a nearly statistically insignificant number, Kyoto would have disastrous effects on the economy, as the estimated cost in implementing Kyoto would be between $100 billion and $400 billion[5].

Beyond the overall cost of Kyoto, it is fatally flawed in its design. Since Kyoto is not targeting the developing world, most industries, instead of facing the environmental restrictions, would probably relocate to a less-restrictive, developing country. And, because of struggling governments with no ability to regulate environmental policies, the output of carbon emissions from those particular countries would likely increase over current emission numbers. These developing countries are also predicted to have the largest increase in carbon emissions in the near future, as they begin to rely more heavily on automobiles, industry, and technology. Thus, without regulating their carbon emissions, the regulation of the developed world through Kyoto would go for naught.

The Kyoto Protocol simply cannot be supported. It would cause incredible amounts of lost jobs (the Heartland Institute estimates 2.4 million jobs would be lost[6]), lead to increased poverty, and perpetuate a crippled American economy for a cause that will not be universally applied and will have little impact on the global climate.

After analyzing all the studies and information, it is clear that global warming is a complex issue without definitive answers. It is indisputable that humans have played a role in increased carbon emissions, and because of this, government and the people should constantly focus on trimming the rate and amount of carbon emissions, thereby producing cleaner air. Humanity and governments should take precautions to decrease carbon emissions and increase environmentally-friendly technology without crippling the world economy and causing an even greater poverty epidemic than already exists. One way to do this would be to

decrease the amount and the concentration of carbon emissions without limiting them entirely. This would allow technology and industry to grow, while resulting in a reduction in carbon released into the atmosphere. This type of measure is in agreement with the action taken and principles stated by the United States in the Asia-Pacific Partnership on Clean Development in July of 2005.

While humanity is responsible for increased carbon emissions and should take results-oriented action, there is no conclusive evidence that a current warming trend is solely or even primarily due to human factors. Many factors impact climate change, and as recently as the mid-twentieth century there was a cooling trend even while human carbon emissions were unchecked. In fact, recent numbers have been inflated because of the El-Niño phenomenon. To base an entire global warming "world crisis" on the extrapolation of data from a short time period into decades and centuries of supposed increased warming using a hypothetical computer model is neither prudent nor effective. There may be a current warming trend on the earth, and humans probably have played a role in causing this trend. However, the degree of warming is not proven and the extent of man's role has not been pinpointed. Thus, to take rash action, crippling economies and forcing families out of jobs over a phenomenon that could be largely impacted by weather patterns and cyclical warming and cooling trends in the oceans and natural environment, is both irrational and imprudent. Thus, continued research is vital to more clearly understand the root problems of potential climate change and discover if this is a problem which particularly impacts the current generation because of environmental disregard, if it is part of a large scope of warming and cooling patterns throughout history, or if it is simply an environmental non-issue.

The Christian view on global warming needs to be based on theology and reason, and this position on global warming has been developed under these guidelines. God has given man a biblical requirement for stewardship (Gen. 2:15), which means that humans should both use and care for the environment. Devaluing the use and overemphasizing the care for the environment is not a proper biblical practice and neither is the opposite. Biblical stewardship demands a dual relationship between use and care in order to develop industry and protect against abuse. In the current global warming debate there are simply not enough facts to mandate an extreme limiting of the use of natural resources to guard against "abuse" that only has hypothetical consequences and goes against the informed opinions of thousands of knowledgeable scientists and climatologists.

Endnotes

[1] Sallie Baliunas, "Warming Up to the Truth: The Real Story About Climate Change," The Heritage Foundation (22 August 2002) , par. 11.

[2] "Instant Expert Guide: Global Warming," The Heartland Institute (Chicago: Heartland, 1999), 7.

[3] Pat Michaels, "Review of the 2001 U. S. Climate Action Report," Cato Institute 3 June 2002, 2.

[4] Ibid., 52.

[5] Ibid., 56.

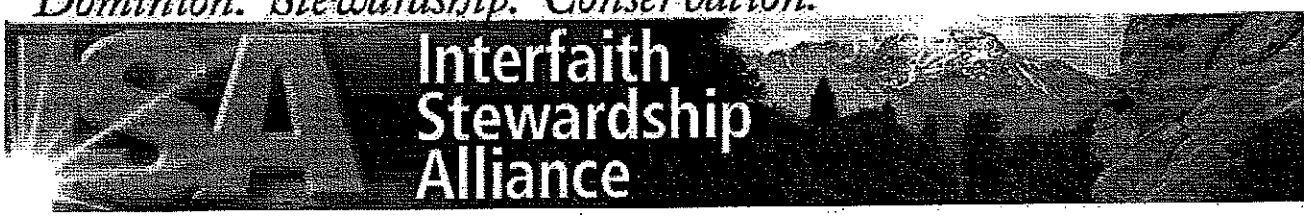
[6] "Instant Expert Guide: Global Warming," The Heartland Institute, 5.

Appendix F

Interfaith Stewardship Alliance

"An Open Letter to the Signers of
'Climate Change: An Evangelical Call to Action'
and Others Concerned About Global Warming"

Dominion. Stewardship. Conservation.



An Open Letter to the Signers of
"Climate Change: An Evangelical Call to Action"
and Others Concerned About Global Warming

"They only asked us to remember the poor–the very thing I was eager to do."
–The Apostle Paul, Galatians 2:10

Widespread media reports tell of a scientific consensus that:

- the world is presently experiencing unprecedented global warming;
- the main cause of it is rising atmospheric carbon dioxide because of human use of fossil fuels for energy; and
- the consequences of continuing this pattern will include (1) rising sea levels that could inundate highly populated and often poor low-lying lands, (2) more frequent deadly heat waves, droughts, and other extreme weather events, (3) increased tropical diseases in warming temperate regions, and (4) more frequent and intense hurricanes.

Recently eighty-six evangelical pastors, college presidents, mission heads, and other leaders signed "Climate Change: An Evangelical Call to Action," under the auspices of the Evangelical Climate Initiative. The document calls on the federal government to pass national legislation requiring sufficient reductions in carbon dioxide emissions to fight global warming and argues that these are necessary to protect the poor from its harmful effects.

In light of all this, many people are puzzled by the Interfaith Stewardship Alliance's opposition to such calls. Do we not *care* about the prospect of catastrophic global warming? Do we not *care* that with rising temperatures the polar ice caps will melt, and the sea will inundate low island countries and coastal regions? Do we not *care* that the world's poor might be most hurt by these things?

Yes, we care. But we also believe, with economist Walter Williams, that "truly compassionate policy requires dispassionate analysis." That is the very motive for our opposing drastic steps to prevent global warming. In short, we have the same motive proclaimed by the Evangelical Climate Initiative in its "Call to Action."

But motive and reason are not the same thing. It matters little how well we mean, if what we do actually harms those we intend to help.

That is why we take the positions we do. In the accompanying document, **"A Call to Truth, Prudence,**

and Protection of the Poor: An Evangelical Response to Global Warming," we present extensive evidence and argument against the extent, the significance, and perhaps the existence of the much-touted scientific consensus on catastrophic human-induced global warming. Further, good science–like truth–is not about counting votes but about empirical evidence and valid arguments. Therefore we also present data, arguments, and sources favoring a different perspective:

- Foreseeable global warming will have moderate and mixed (not only harmful but also helpful), not catastrophic, consequences for humanity–including the poor–and the rest of the world's inhabitants.

- Natural causes may account for a large part, perhaps the majority, of the global warming in both the last thirty and the last one hundred fifty years, which together constitute an episode in the natural rising and falling cycles of global average temperature. Human emissions of carbon dioxide and other greenhouse gases are probably a minor and possibly an insignificant contributor to its causes.

- Reducing carbon dioxide emissions would have at most an insignificant impact on the quantity and duration of global warming and would not significantly reduce alleged harmful effects.

- Government-mandated carbon dioxide emissions reductions not only would not significantly curtail global warming or reduce its harmful effects but also would cause greater harm than good to humanity–especially the poor–while offering virtually no benefit to the rest of the world's inhabitants.

- In light of all the above, the most prudent response is not to try (almost certainly unsuccessfully and at enormous cost) to prevent or reduce whatever slight warming might really occur. It is instead to prepare to adapt by fostering means that will effectively protect humanity–especially the poor–not only from whatever harms might be anticipated from global warming but also from harms that might be fostered by other types of catastrophes, natural or manmade.

We believe the harm caused by mandated reductions in energy consumption in the quixotic quest to reduce global warming will far exceed its benefits. Reducing energy consumption will require significantly increasing the costs of energy–whether through taxation or by restricting supplies. Because energy is a vital component in producing all goods and services people need, raising its costs means raising other prices, too. For wealthy people, this might require some adjustments in consumption patterns–inconvenient and disappointing, perhaps, but not devastating. But for the world's two billion or more poor people, who can barely afford sufficient food, clothing, and shelter to sustain life, and who are without electricity and the refrigeration, cooking, light, heat, and air conditioning it can provide, it can mean the difference between life and death.

Along with all the benefits we derive from economic use of energy, another consideration–a Biblical/theological one–points in the same direction. The stewardship God gave to human beings over the earth–to cultivate and guard the garden (Genesis 2:15) and to fill, subdue, and rule the whole earth (Genesis 1:28)–strongly suggests that caring for human needs is compatible with caring for the earth. As theologian Wayne Grudem put it, "It does not seem likely to me that God would set up the world to work in such a way that human beings would eventually destroy the earth by doing such ordinary and morally good and necessary things as breathing, building a fire to cook or keep warm, burning fuel to travel, or using energy for a refrigerator to preserve food."

Whether or not global warming is largely natural, (1) human efforts to stop it are largely futile; (2) whatever efforts we undertake to stem our small contributions to it would needlessly divert resources from much more beneficial uses; and (3) adaptation strategies for whatever slight warming does occur are much more sensible than costly but futile prevention strategies. Therefore, we believe it is far wiser to promote economic growth, partly through keeping energy inexpensive, than to fight against potential global warming and thus slow economic growth. And there is a side benefit, too: wealthier societies are better able and more willing to spend to protect and improve the natural environment than poorer societies. Our policy, therefore, is better not only for humanity but also for the rest of the planet.

We recognize that reasonable people can disagree with our understanding of the science and economics. But this is indeed our understanding.

Please join us in endorsing **"A Call to Truth, Prudence, and Protection of the Poor: An Evangelical Response to Global Warming."** To do so, send an e-mail with your name, degree(s) (with subject, level, and granting institution), professional title, professional affiliation (for identification purposes only), mailing address, e-mail address, and (for verification) phone number to isa@interfaithstewardship.org. If you have questions, please e-mail the same address.

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